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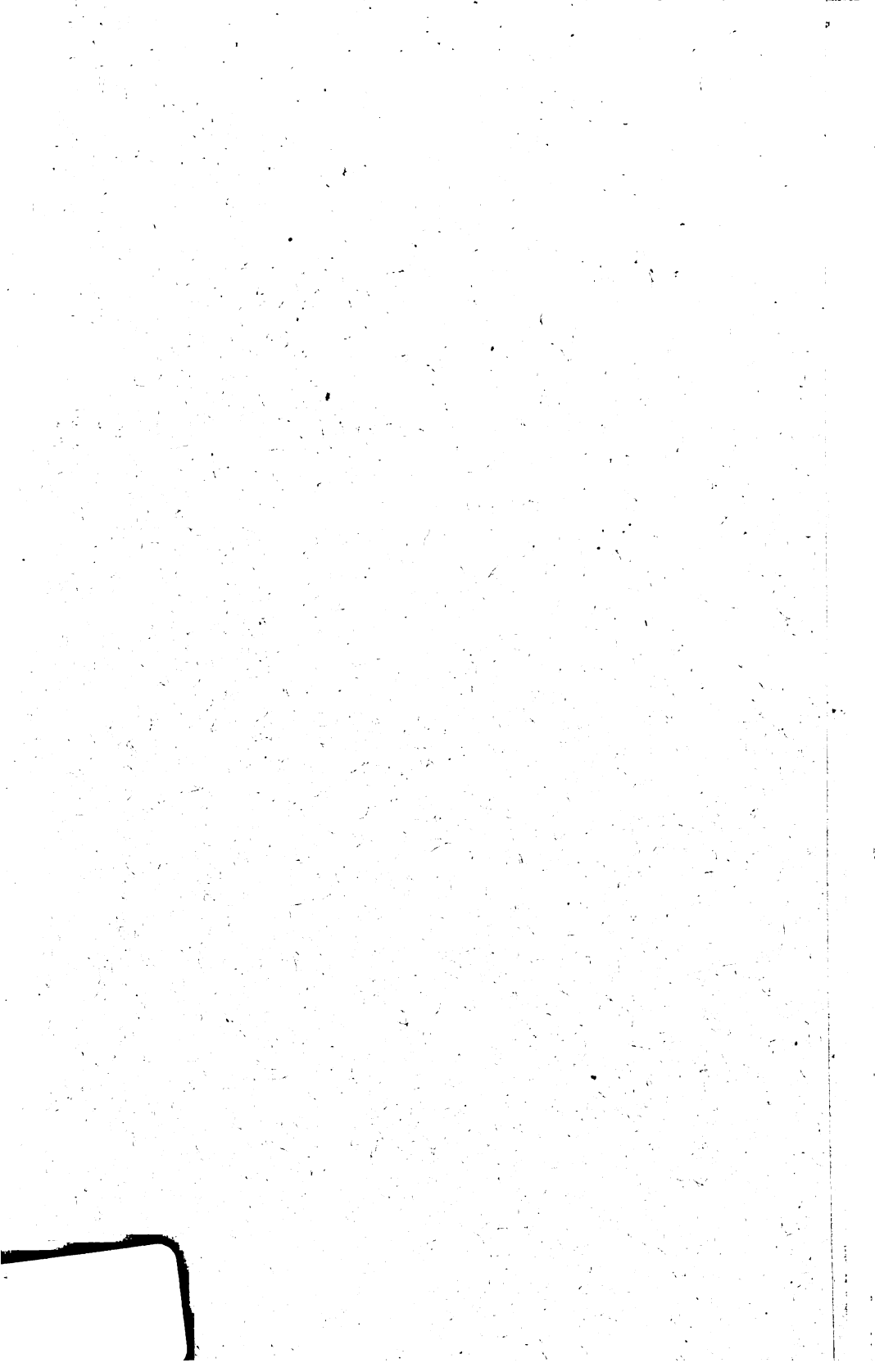
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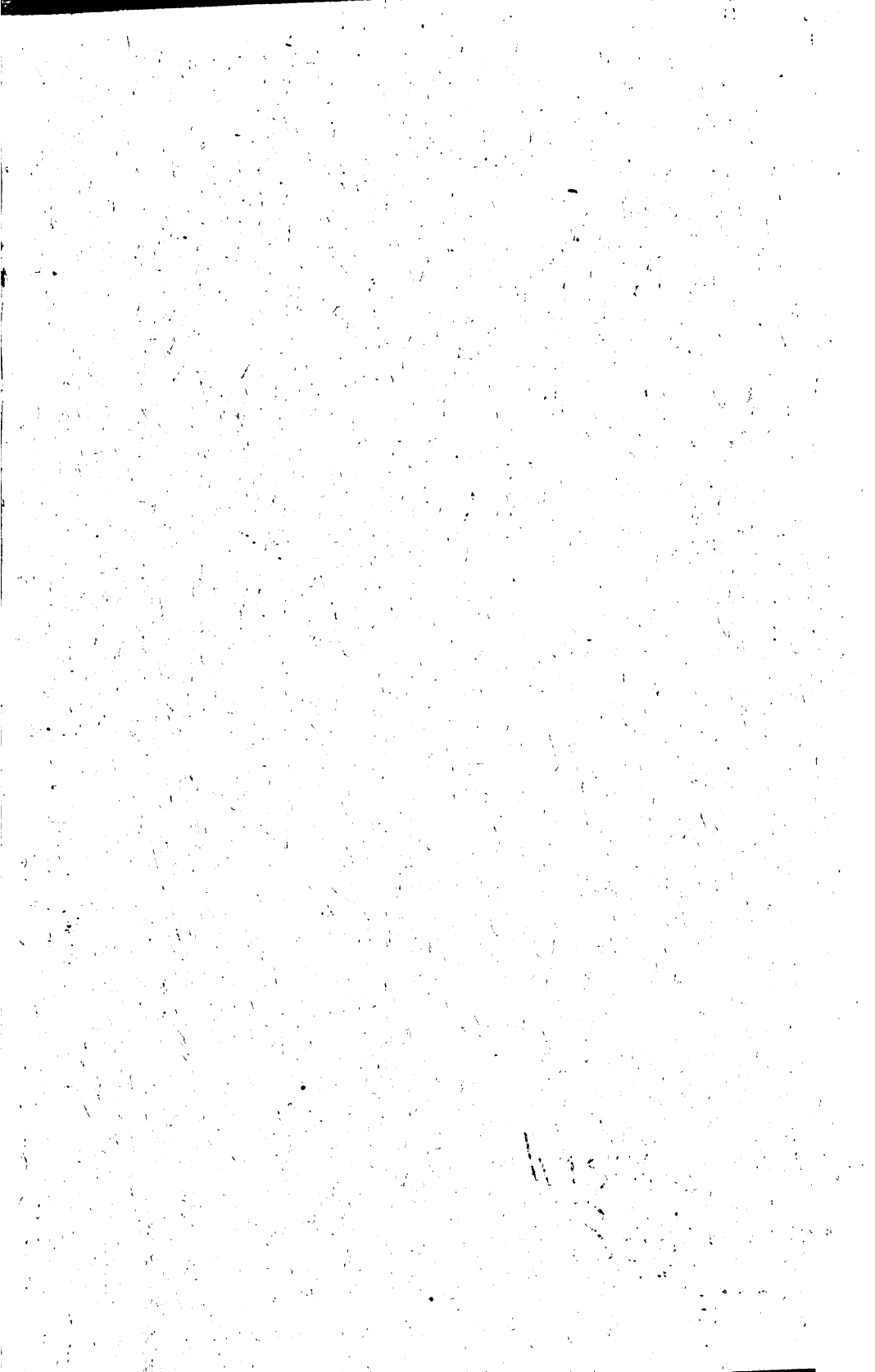
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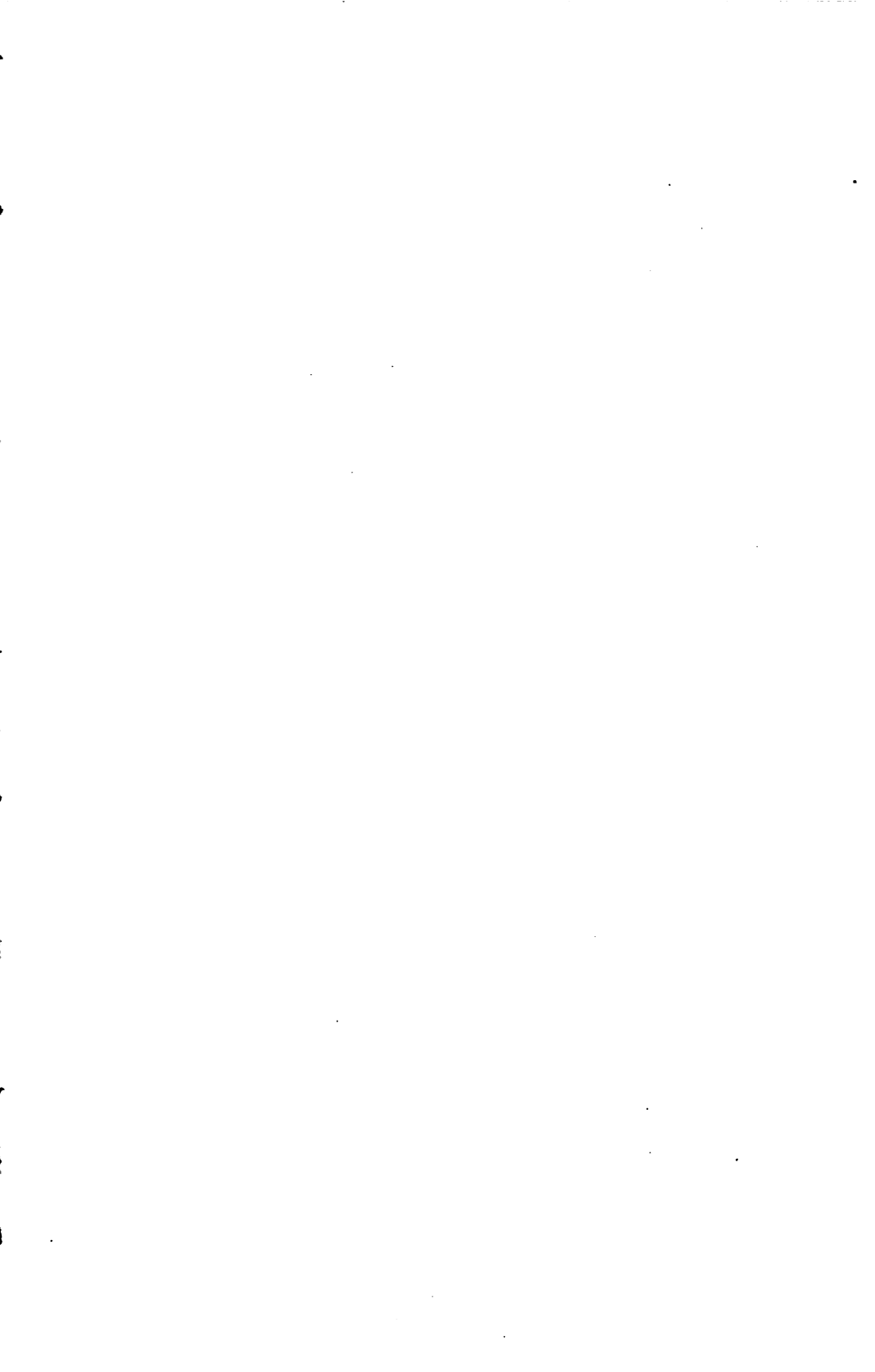
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THE UNIVERSITY OF WISCONSIN

BIENNIAL REPORT

OF THE

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FOR THE

Years 1912-13 and 1913-14



MADISON, WIS.

DEMOCRAT PRINTING COMPANY, STATE PRINTER

1914

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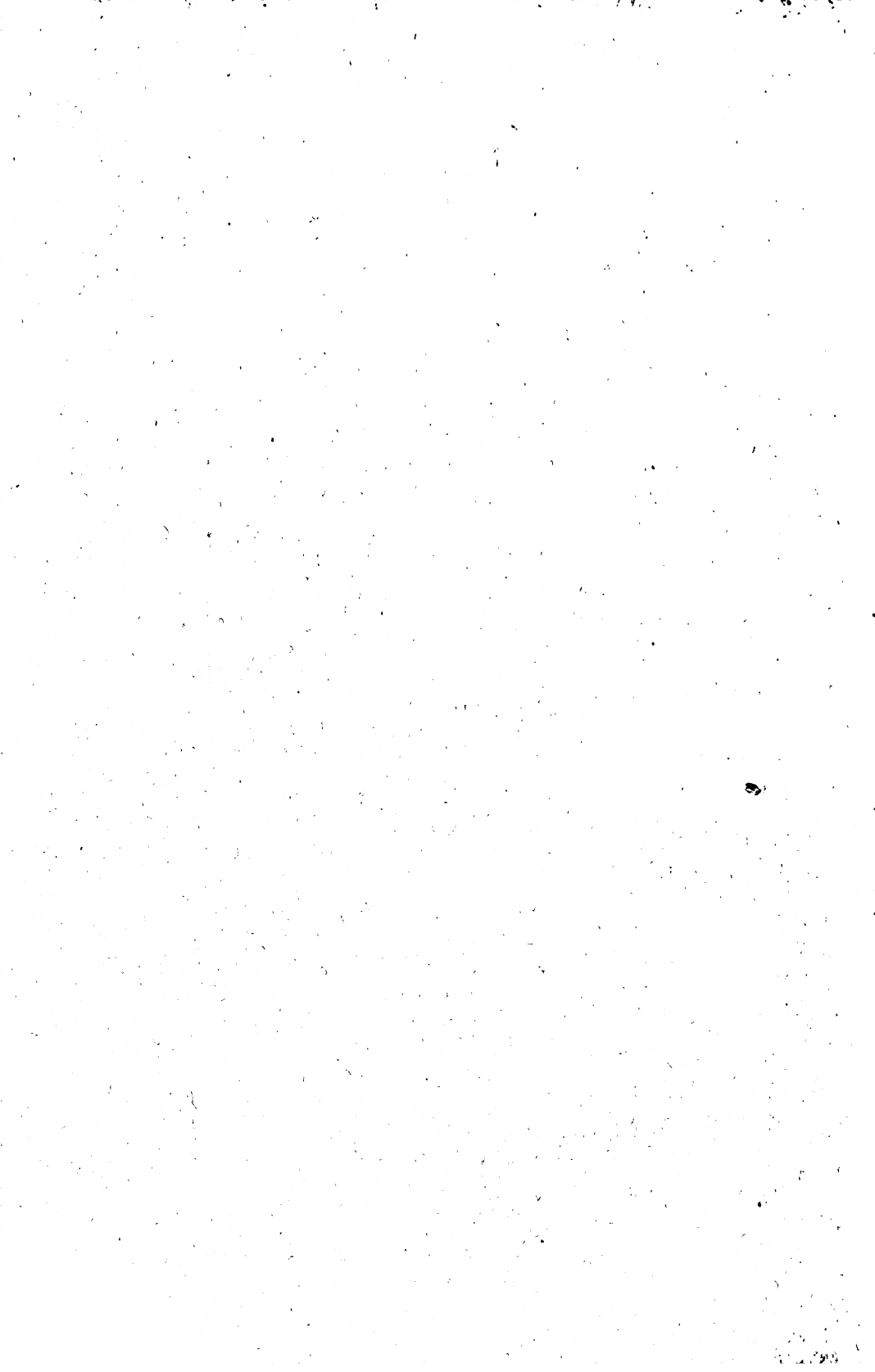
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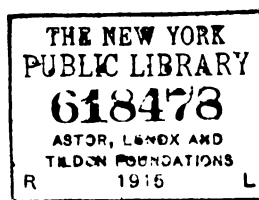
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THE REGENTS OF THE UNIVERSITY

THE REGENTS

CHARLES R. VAN HISE, President of the University, *ex officio*.
CHARLES P. CARY, State Superintendent of Public Instruction,
ex officio.

	TERM EXPIRES
<i>State-at-Large</i> —GILBERT E. SEAMAN, Milwaukee	1919
<i>State-at-Large</i> —MRS. FLORENCE G. BUCKSTAFF, Oshkosh	1917
<i>First District</i> —A. J. HORLICK, Racine	1919
<i>Second District</i> —F. W. A. NOTZ, Watertown	1918
<i>Third District</i> —EDWARD M. McMAHON, Madison	1919
<i>Fourth District</i> —THEODORE M. HAMMOND, Wauwatosa	1916
<i>Fifth District</i> —JAMES F. TROTTMAN, Milwaukee	1915
<i>Sixth District</i> —MISS ELIZABETH A. WATERS, Fond du Lac	1915
<i>Seventh District</i> —D. O. MAHONEY, Viroqua	1920
<i>Eighth District</i> —GRANVILLE D. JONES, Wausau	1916
<i>Ninth District</i> —ORLANDO E. CLARK, Appleton	1918
<i>Tenth District</i> —BEN F. FAAST, Eau Claire	1920
<i>Eleventh District</i> —A. P. NELSON, Grantsburg	1917

OFFICERS OF THE REGENTS

JAMES F. TROTTMAN, *President*.
A. P. NELSON, *Vice-President*.
HENRY JOHNSON, *STATE TREASURER, ex officio Treasurer*.
H. J. THORKELSON, *Acting Business Manager*.
M. E. McCAFFREY, *Secretary*.
G. L. GILBERT, *Bursar*.
C. W. FARLIN, *Purchasing Agent*.

STANDING COMMITTEES

(The President is *ex officio* a member of all standing committees)

Executive—HAMMOND, SEAMAN, McMAHON.

College of Letters and Science—BUCKSTAFF, NOTZ, SEAMAN, WATERS,
CLARK.

College of Agriculture—MAHONEY, JONES, NELSON, HORLICK, FAAST.

Law School—CLARK, JONES, MAHONEY.

Trust Funds—McMAHON, JONES, SEAMAN.

Finance—JONES, NELSON, HAMMOND, CLARK, McMAHON.

College of Engineering—NOTZ, HAMMOND, FAAST.

Medical School—SEAMAN, CARY, HORLICK.

University Extension—CARY, BUCKSTAFF, SEAMAN, NOTZ, CLARK.

Physical Education—NELSON, WATERS, MAHONEY.

Summer Session—FAAST, WATERS, NELSON.

Women's Affairs—WATERS, BUCKSTAFF, JONES.

Constructional Development—SEAMAN, JONES, McMAHON, BUCKSTAFF,
HAMMOND.

By-Laws—HORLICK, HAMMOND, NELSON.

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The University of Wisconsin

REPORT OF THE REGENTS

Milwaukee,
December twenty-eight,
Nineteen fourteen.

To His Excellency, FRANCIS E. MCGOVERN,
Governor.

Sir:—I have the honor, in behalf of the Regents of the University, to present herewith their biennial report in detail for the biennial fiscal term 1912-13 and 1913-14.

In accordance with the practice heretofore obtaining, this report is made up of the report of the President of the University, supplemented by the several reports of the Deans of the Colleges, Schools, and Extension Division, and of the Directors of the various courses and departments, and by the reports of other educational officers, and further supplemented by the reports of the Business Manager and of the State Treasurer, *ex-officio* treasurer of the Board of Regents of the University, and is intended to exhibit the progress, conditions, and wants, of the University and other important information relating to the University's work.

Yours very respectfully,
JAMES F. TROTTMAN,
President.

L.



REPORT OF THE PRESIDENT

*To the Honorable James F. Trottman,
President of the Regents,
Of The University of Wisconsin.*

Sir:

Herewith I submit my report for the biennial period ending June 30, 1914.

As usual the report consists of the following parts:

I. The Progress of the University.

II. The Needs of the University.

Also, in accordance with custom, following my report are reports from the deans and directors of the various colleges, schools, and courses, from the Business Manager, and other officers. My report will be devoted largely to supplementary material rather than to a restatement of these detailed reports. Each of these reports should receive the careful consideration of the Regents.

I. THE PROGRESS OF THE UNIVERSITY

A. GENERAL PROGRESS

The two years of the biennium have been those of expansion in existing schools, colleges, and courses, rather than the establishment of any new organizations. The biennium has been one of rapid growth, in consequence of which there has been a marked increase in the faculty. The changes in the faculty are given in the reports of the deans and directors.

THE FACULTY

The increase in the faculty is shown by the table below. This table gives the number of the instructional force on University pay and in active service during three years. These qualifica-

tions exclude from the table emeritus professors, occasional lecturers, assistants, men in employ of the state serving the University without compensation, men on leave of absence for one year, men of faculty rank whose duties are purely administrative, members of the Library School staff, whose salaries are not under control of the University, organizers of the Extension Division, and county agricultural representatives.

Men whose appointments were for a period less than one year, men who did not give full time to University work, and men who were on leave of absence for a part year are considered part-time men; hence the fractions to the nearest third. Lecturers, assistants, etc., are not included, since there is no way accurately to compare the numbers of one year with those of another year because of the variable amount of work required of these classes of the force.

	1911-12	1912-13	1913-14
Professors (including Deans and Directors)	79	83	87½
Associate Professors	37½	41½	49
Assistant Professors	90½	100½	96
	<hr/>	<hr/>	<hr/>
Instructors	206⅝ 156	225⅙ 171½	232½ 190⅞
	<hr/>	<hr/>	<hr/>
	362⅝	396⅔	423⅙

The table shows that the increase in number of professors, associate professors, and assistant professors for the biennium was 25⅔%, or 12.4 per cent, and that the increase in the number of instructors was 34⅔%, or 22.2 per cent.

The percentage of increase in the faculty during the biennium has been very rapid in the College of Agriculture, in home economics, and in extension, since in agriculture and home economics, there have been very rapid increases in the number of students and in extension there has been a large expansion of its work due to the additional funds made available by the legislature.

THE STUDENTS

At Madison the total number of separate students attending the University, including those in the short courses and in the summer sessions, the year preceding the biennium was 5,748; in 1912-13, 5,970, an increase of 222; in 1913-14, 6,765, an increase of 795. Thus the total growth of the two years was 1,017, or 17.7 per cent.

In extension an increased number has taken correspondence work. During the biennium there were 6,498 new registrations, and during the second year of the biennium there were 8,933 active registrations, representing 7,662 different students.

IMPROVEMENT IN ORGANIZATION

In the previous biennial report, attention was called to the fact that for every department in which there are large elementary classes, a man of professional rank has been given charge of the work. This plan, first fully in operation two years ago, has during the biennium made the elementary instruction more efficient than ever before.

It has been repeatedly stated that the instruction of the freshmen and sophomores is not given sufficiently careful consideration as compared with the advanced work. The true situation, upon the contrary, is that a closeness of scrutiny and attention is given to the work of the freshmen and sophomores which is not given to and is not necessary for the advanced students.

It is the purpose of the University during the four-year course to carry the student from the stage of dependence to that of independence. The freshman, not understanding methods of independent study, must, at the outset, have his work closely followed up; but in the latter part of the four-year course, the student should have gained capacity to work by himself under general direction. As has been said, the University authorities recognize this principle, and emphasize the supervision of the work done during the first two years and the close following up of the individual students.

The office of Business Manager, created during the previous biennium has proved, as a result of a three years' test, to be a great improvement in organization. The initiation of expenditures must rest with the educational officers of the University, for the larger part of the income of the University goes for educational purposes. Therefore upon the educational officers and especially the President rests the duty of preparing the budget. The material for such budget is of course largely furnished by the deans, directors, and Business Manager. This budget, revised by the Finance Committee of the Regents and finally adopted by the Regents, becomes the basis of the business transactions of the year. The carrying out of these busi-

ness transactions rests with the Business Manager, with the consequence of relieving the educational officers from this duty.

Similarly, in constructional work, the Business Manager has been a great relief to the educational officers. The educational officers must be deeply interested in and give much time to the preparation of the plans for buildings. The plans once adopted, the letting of the contracts and the construction of the building fall exclusively upon the Business Manager under the direction of the Regents.

Although anticipating the next biennium, it may be said that Dr. H. C. Bumpus, who, since the creation of this office has occupied the position of business manager, resigned November 1st to take the position of president of Tufts College.

STUDENT LIFE

During the biennium, effort has been directed to the improvement of the efficiency of existing organizations having to do with student life. The supervision of the work of the students on the scholastic side rests with the advisers, special provision being made for the freshmen, as described in the biennial report of two years ago. The control of student affairs outside of the class room is in the hands of the students themselves, the Student Conference and the Student Court for the men and the Self Government Association and the Judicial Committee for the women.

The growth of extra curricular activities in the University, as in other universities, has been such as to occasion the serious concern of the faculty. It is believed to be advantageous for each student to participate in student activities, since many of these are educational; indeed I have advised each student to participate in at least one activity, which involves intellectual work, such as debating, dramatics, journalism, and also in one out-of-door sport.

The difficulty which has arisen in connection with extra curricular activities is that a large number of students have failed thus to participate, while a smaller number have participated in so many activities as to interfere with their regular work in the University. In consequence of this situation, the second year of the biennium the faculty appointed a committee to consider the entire question of extra curricular activities. This

committee reported to the faculty and the report after modification was adopted. The central idea of this report is to bring together under the control of a single committee all extra curricular activities so that there may be in one body knowledge of all such activities. Each group of activities is in charge of a sub-committee responsible to the main committee. The chairman of the general committee is to devote a large part of this time to its work, and thus in a measure perform the duties of a dean of men. This plan will be put into operation the coming biennium. It is hoped that it will result in a much wider participation by the students in extra curricular activities and in moderation for those who have been inclined to excess in this regard.

STUDENT HEALTH

During the biennium there has been considerable expansion in the Department of Medicine devoted to student health. This has been possible because a building has become available in which this service has been concentrated. The work of no department of the University is looked upon with more satisfaction than this.

The men and women, on entering the University, are subjected to a thorough medical examination. As a result of this examination, they are classified into three groups and the work in physical education for every student is adapted to the group in which he is placed. Also in case of any indisposition, even if a minor one, because of the opportunity for immediate attention, the student at once receives medical attention. The amount of work involved in the care of student health is shown by the following figures:

During the regular year of 1912-13, the number of consultations was nearly 24,000; and during the Summer Session of 1912, 1,664. In 1913-14, the consultations during the regular sessions were almost 31,300, and for the Summer Session of 1913 over 1,100. The number of individuals involved was for the regular session of 1913, 3,397; for the Summer Session of 1912, 479; for the regular session of 1913-14, 3,685; for the Summer Session of 1913, 423. These figures show that more than half of the students of the University some time during a year take advantage of the opportunities of the Clinical Department.

During the biennium, as heretofore, since the Department of Student Health has been established in no case has there been an epidemic. For the reasons above given there can be no doubt that the general efficiency of the student body is considerably increased by the department. No quantitative figure can be given; but it is safe to say that five per cent increase in effectiveness would be too small and ten per cent perhaps not too large an estimate for this service.

Aside from the general health work various scientific studies are being carried on for the student body as a whole. One of these is the relation of athletics to health. Such studies will have an important bearing upon the general health of the community as well as upon the athletics within the student body. The results of the first completed study on athletics, that on intercollegiate rowing in the University, are now available; they will be mentioned in another connection. (See pp. 278-279.)

INSPECTION OF ROOMING HOUSES

As heretofore, the houses in which the students live are inspected by the Medical Department in regard to their sanitary conditions, special attention being given to ventilation, heating, plumbing, and general cleanliness. This inspection extends also to the fraternity houses. In addition to this inspection, rooming houses occupied by women must be approved by the office of the Dean of Women. The inspection of rooming houses has resulted in great improvement in the living conditions of students in the University during the past two years.

PERMANENT IMPROVEMENTS

During the biennium there have been larger additions to the physical quarters available to the University than in any previous biennium. Four large educational buildings and an additional women's dormitory have been occupied. In addition to these, several buildings of moderate size have been completed and also various minor structures. These buildings are fully described in the report of the architect.

BIOLOGY BUILDING

For educational purposes the most important building is that for biology. This structure is 240 feet long, 49 feet wide, and

has a floor area of 80,000 square feet, exclusive of greenhouses. It is believed that this building will adequately provide for the Departments of Zoology and Botany, without addition, for a considerable number of years.

WING TO CHEMICAL BUILDING

The chemical building, occupied for the first time in 1906, in less than six years had proved inadequate to meet the needs of the University, and during the biennium a large wing was added at a cost of somewhat more than \$72,000. This addition to the Chemistry building should provide adequately for a considerable growth in the University.

AGRICULTURAL CHEMISTRY BUILDING

The third important building is that for Agricultural Chemistry. This work heretofore has been located in central Agricultural Hall. The new building for this purpose has a floor area of 30,000 square feet and has cost somewhat more than \$83,000.

HOME ECONOMICS BUILDING

The fourth large building is that for Home Economics and Extension. This has floor area of 50,000 square feet. Home Economics, heretofore located in the attic of Lathrop Hall, now has adequate accommodations. Also the University Extension Division, heretofore located in University Hall, has found appropriate accommodations to carry on its rapidly enlarging work.

BARNARD HALL

Another large building which has been a great acquisition to the University is Barnard Hall, a dormitory for women. This hall is a thoroughly modern structure, built after careful studies of dormitory structures in other institutions. It has rooms for 133 students and in addition dining halls, parlors, and rooms for servants. The occupancy of this building has been of immense assistance in solving the problem of adequate living quarters for the women students of the University.

Other structures of some consequence are as follows:

GYMNASIUM ANNEX

An annex was constructed to the Gymnasium which has a floor area of 17,000 square feet. This annex has somewhat relieved the pressure for space due to the fact that the Gymnasium is used by both the Department of Physical Education and the Department of Military Science, as well as for an auditorium.

STUDENT HEALTH BUILDING

The work of the Department of Clinical Medicine has already been mentioned in connection with student health. The house on the property acquired from Mr. John M. Olin has been enlarged at an expense of \$12,000, so as to have a floor area of 8,500 square feet. This well accommodates the work of the department devoted to student health.

WISCONSIN HIGH SCHOOL

Another very important building, nearly completed during the biennium, which will be ready for occupancy at the opening of 1914-15, is the Wisconsin High School. This building has a floor space of 40,000 square feet; it will cost approximately \$120,000. As explained in another connection, this building will serve for an observation and practice school for the Course for the Training of Teachers as well as a laboratory for the Department of Education.

WING OF HISTORICAL LIBRARY BUILDING

Another structure, which was not built by the University but which is available for its use, is the northwest wing of the State Historical Library. This wing, mainly devoted to books stacks, carries out the original plan of having the books of the Historical Library in the south stacks and the books of the University Library in the north stacks. The accommodations for the books of the University Library are now adequate. This wing is thus of great advantage to all departments of the University and especially to those of the liberal arts.

SMALLER STRUCTURES

In addition to the above structures, there have been built a number of small buildings and additions to existing buildings. For the College of Agriculture these include a laboratory for the production of hog cholera serum, two hog barns for experimental work, a plant pathology greenhouse adjacent to the horticultural greenhouses, a fireproof book room in Agricultural Hall, and various small buildings at the sub-stations of Ashland, Spooner, and Marshfield. The total cost of these structures for the College of Agriculture was about \$29,000.00.

For general purposes there were also constructed an electric sub-station in the central heating plant, at a cost of somewhat more than \$900, and a central kitchen to serve Chadbourne, Barnard, and Lathrop Halls, at a cost of about \$11,000.

BUILDINGS CONSTRUCTED IN ACCORDANCE WITH GENERAL PLAN

The buildings completed during the biennium conform to the general plan for the constructional development of the University. Those located east of University Hall are faced with Madison sandstone; those between University Hall and Agricultural Hall with yellow brick of the same color as the Madison sandstone with trimmings of Bedford lime stone; and those west of Agricultural Hall with brown brick. This plan places the most expensive structures on the prominent part of the grounds, buildings somewhat less expensive in the intermediate area, and the least expensive buildings on the western part of the grounds. Buildings of all types are of reinforced concrete construction and are fireproof throughout.

The expenditures for new construction by the University during the biennium amounted to \$715,547.70.

LAND PURCHASE

In the biennial report of two years ago mention was made of an appropriation of \$47,000 a year for five years for the purchase of the Raymer farm and Olin tract, together aggregating 156.15 acres. The legislature of 1913 also made an additional appropriation of \$50,900 a year for a period of two years for the purchase of various lots north of University Avenue between

Charter Street and Agricultural Hall, and for the purchase of the eighty-acre Koch farm adjacent to the Hill farm. During the year 1913-14 the first half of this appropriation became available. Also during the biennium there have been payments made upon lots which have been previously purchased in this general neighborhood and which had not been fully paid for. The outstanding debt (Dec. 1, 1914) not due is now \$2,000. During the biennium there were spent, for all these lines of land purchase, in 1912-13, \$71,402.55; in 1913-14, \$142,128.57; a total of \$213,531.12.

June 30, 1914, the acreage of land belonging to the University was as follows:—Continuous area from Park Street to Eagle Heights, including Camp Randall, 637.83 acres; the agricultural farm, separated by a short distance from the previous area, 290 acres; northern sub-stations, 482.64 acres; total 1,410.47 acres.

There still remains a considerable number of lots between Charter Street and the agricultural buildings north of University Avenue which it will be necessary to acquire slowly during the years to come as the ground is needed for building purposes; also, some further purchases will need to be made east of Park Street; and, when it comes upon the market, Picnic Point farm should be obtained, the only area lying between the University grounds and the lake. When the lands mentioned are acquired, it may be said that the grounds of the University will be adequate to meet the needs of the University for the indefinite future. None of the plans of the Regents have been wiser than the policy not to allow the city to overlap the University, and steadily to acquire land to the west until an adequate area be secured to meet the probable future needs of the University.

GIFTS

The most important gift received by the University during the biennium is a collection of paintings. Professor Paul S. Reinsch, while in Europe, made a collection of one hundred forty paintings, representing the Flemish, Dutch, Italian, Spanish, French, and English schools. Of this collection sixty paintings of the French, Dutch, and Flemish schools, including the well known names of Massys, Rembrandt, Cuyp, Teniers, Hobbema, and Israels, were presented to the University by Mr. Charles R. Crane, of Chicago. Colonel William C. Brumder, of Milwau-

kee, presented seven large paintings from the collection representing the German school. The remainder of the collection is on loan by Professor Reinsch at the University. The collection of paintings has much material which is of great value in teaching the history of art.

During the biennium many other small gifts have come to the University. The list is as follows:

1912-1913

Carnegie Foundation Fund.....	\$8,167.75
Mortar Board Scholarship.....	100.00
Wm. F. Vilas Medal Fund.....	200.00
Tarplewick Fellowship (Taylor).....	400.00
Scholarship in Physiology (Bradley).....	500.00
Henry Strong Scholarship.....	999.99
Class of 1872 Free Memorial.....	5.00
Gas Engine Expo. Fund.....	102.43
Amundson Lecture Fund.....	270.00
Hollister Pharmacy Fellowship.....	5,000.00
Class of 1912 Loan Fund.....	765.00

1913-14

Carnegie Foundation	\$9,551.63
Vilas Medal Fund.....	180.00
Gamma Phi Beta Scholarship.....	200.00
Self-Government Association Scholarship.....	100.00
Henry Strong Scholarship Fund.....	1,300.00
Albert Markham Mem. Fellowship.....	800.00
Class of 1913 Loan Fund.....	396.48
Menorah Society Prize Fund.....	200.00
Milwaukee Drug Company Scholarship.....	35.00
Pure Seed Special.....	319.51
B. R. Kohn Boat Fund.....	35.00

Total	\$29,627.79
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B. THE PROGRESS OF THE COLLEGES

The progress of the colleges is fully covered in the reports of the deans and directors. Therefore the statements which will be made under this heading will be brief.

THE COLLEGE OF LETTERS AND SCIENCE

During the biennium for the regular sessions, the number of students in the College of Letters and Science has increased from 2,504 in 1911-12 to 2,653 in 1913-14, a growth of 149. The larger part of this increase came the second year of the biennium. However, the amount of teaching work in the college

has been increased to a much greater extent than would appear from these numbers, because of the fact that the increased growth of other colleges also affects the work of the College of Letters and Science, it being estimated that of the teaching to freshmen and sophomores in engineering, agriculture, and home economics, about 60 per cent is done in Letters and Science.

No new departments have been added to the College of Letters and Science during the biennium.

THE COURSE IN CHEMISTRY

There has been little change in the Course in Chemistry. It may be noted that this is one of the courses in which nearly all of the students are men. Of the 77 in 1912-13 and 73 in 1913-14, there were each year four women. The men who have graduated in this course find it easy to secure positions, but the same is not true for the women; and, thus, the Course in Chemistry is analogous to engineering in being a professional course in which to the present time the demands for graduates are almost exclusively for men.

THE COURSE IN COMMERCE

The Course in Commerce since its establishment has had a continuous growth, the number of students each year since its establishment in 1900 being greater than for the previous year. The number increased from 340 in 1911-12 to 396 in 1913-14, a growth of 56. The increase in the number of students in this course is a correlative of the fact; that, for the different lines of business, professional training is now being demanded in increasing degree. Probably not many years will elapse before, for the more important positions in business, it will be recognized that the professional training is as essential as for engineering.

THE COURSE IN JOURNALISM

During the biennium the work in Journalism has continued to grow, the number of students increasing from 67 in 1911-12 to 99 in 1913-14. The importance of this professional course has led to making the work in Journalism a separate department, thus giving it the same position in relation to English that Commerce has to the Department of Political Economy. The quar-

ters of the department have been inadequate in University Hall; and, beginning with 1914-15, the department was located in the third floor of South Hall in the space formerly occupied by the Department of Bacteriology. This transfer gives adequate accommodations for Journalism.

COURSE IN LIBRARY TRAINING

In the Library School, two innovations have been put into force during the biennium. In the training for library service, a system of co-operation with the public libraries has been introduced. These libraries are used as laboratories for February and March of each year. For these two months the work in residence is discontinued, and the students are distributed through the public libraries of the state. There, the students perform the work of regular assistants seven or eight hours a day, six days in the week. This experiment is an interesting one since as in other schools and colleges it has been found that the practice work can only be done in the University to a limited degree and that outside co-operation is advisable. This point is alluded to later. In 1913, 37 libraries co-operated by receiving students for library work and, in 1914, 31 libraries thus co-operated.

In the year 1913-14, there was introduced into the Library School a new course for special training for legislative and municipal reference work and the sociological phases of library service. It is believed that there will be an increasing demand for library graduates with special training in political economy, political science, and sociology, to give expert assistance in gathering material relating to questions of municipal, state, and national government.

COURSE IN PHARMACY

To the Course in Pharmacy, there has been attached a Pharmaceutical Experiment Station, created because of the special appropriation by the legislature of \$2,500 per annum for this purpose. This station has been in existence only one year; and, therefore, little can be said regarding its probable contributions to the science of pharmacy; but the action of the legislators was notable in that by special appropriation they deliberately associated investigative work with the teaching of pharmacy and

gave such investigation a special grant. This action of the legislature is significant as recognizing the essential connection between successful teaching and investigation.

THE COURSE FOR THE TRAINING OF TEACHERS

During the biennium, in the Course for the Training of Teachers, comparatively few changes have been actually put in operation; but preparations were made for occupancy of the Wisconsin High School Building. This school, upon taking possession of its new building was reorganized. The requirements for the University teachers certificate have been modified and increased. The details of these changes are fully given in the Reports of the Dean and of the Director of the course.

It may be said that at the beginning of the 1914-16 biennium the Course for the Training of Teachers, which has been developing for ten years, while perhaps not having reached final form, has become an established course upon as permanent a basis as the other courses in the College of Letters and Science.

COLLEGE OF AGRICULTURE

TEACHING

The attendance in the College of Agriculture has grown very rapidly during the biennium, from 609 in 1911-12 to 817 in 1913-14, an increase of 208. The home economics work during the same period has increased from 134 to 205, an increase of 71. With the rapid increase in numbers, the students in agriculture to a larger extent are coming from the cities. Many of such students have had little or no practical farm experience. In consequence of this new situation, it has been decided that, before graduation, students must have at least a full year of practical farm experience. If they have not already had such experience, it must be acquired outside of the University before the degree is granted.

The increase in the expenditures of the college has been due more to the expansion of old lines than to the introduction of new work. During the biennium, however, there was introduced a practical course for forest rangers, the instruction of which is directed to the preparation of men expecting to do rangers work. In connection with this rangers course, woodlot management or

farm forestry has been introduced into the curriculum of the course of the regular students in agriculture.

RESEARCH

As heretofore the College of Agriculture has continued its research work along various lines. A summary of these various researches is given in the accompanying report of the Dean and in a more detailed form in the reports of the Director of the Experiment Station. The wide variety of researches and their many practical relations to agriculture are indicated by the long list of publications, which have been issued during the biennium. (See pp. 101-102).

Perhaps the most important enlargements of the research work during the biennium have been those in plant pathology and the marketing problems. In regard to the latter, while it was natural that the work of the Agricultural College should first be directed to increasing the production of the farm, with the rapid development of agriculture as a science, the business side of farming is becoming more and more important; and, thus, during the biennium there has been co-operation with the state board of public affairs in various studies directed to improving the economy of marketing the products of the farm.

AGRICULTURAL EXTENSION

The third line of work in the College of Agriculture, extension, has grown very rapidly. There has been expansion in old lines of work and additions of new. The county agricultural representative system, started the previous biennium, has been greatly enlarged in consequence of legislative action. Authorization was given to place such representatives in ten counties for the year 1913-14. At the end of the biennium representatives had been established in nine counties. This system, under which an agricultural middleman consults with the farmers individually and in groups to assist them in their work, is to have a far reaching consequence in the rapid application of the science of agriculture to farming. In the winter the agricultural representatives give instruction in agriculture. This instruction, in those counties in which county training schools are organized, is given in these schools.

The general extension work of the college has been carried on much as heretofore. This work, the coming biennium, however, will have large expansion due to the passage of the Smith-Lever bill by Congress, which gives to the State of Wisconsin for the year 1914-15 an appropriation of \$10,000, and thereafter annually an increasing amount which may finally reach as large a sum as \$100,000.

New lines of extension work, inaugurated during the biennium, were co-operation with the State Bankers Association, the establishment of a special branch of the Wisconsin Experiment Association in the growing of alfalfa, and the development of community centers for potato growing.

Notwithstanding the extent to which the extension work had been carried on by the University, the legislature of 1913 took the initiative in establishing other lines of extension work, the more important of which were provision for distribution of hog cholera serum and for the establishment of a state soils laboratory.

The farmers institutes during the biennium have continued along the same lines as in the previous biennium. The end of the biennium marked twenty years of service as head of the institutes of George McKerrow, at which time he resigned.

COLLEGE OF ENGINEERING

In the College of Engineering the attendance has increased slightly during the biennium, being 678 in 1912-13 and 738 in 1913-14; but both numbers are less than the maximum number that have attended this college. At other colleges of engineering in the country a similar situation exists; and this fact raises the question whether or not in engineering the period of rapid expansion has ended. Because of the astonishing expansion of business, industry and transportation, during the past twenty-five years, the colleges of engineering have had a phenomenal growth. In recent years, however, there has been rapidly introduced concentration in management, which has resulted, among other things, in relatively less demand for engineers. As far as one can see, for a few years to come, the added number of new men required each year for this profession will not be vastly greater than at present. This situation has a bearing upon the future growth of the University. It has sometimes been assumed

that the University would continue to grow during the next decade as rapidly as during the past ten years. Certainly this will not be the case for engineering; and probably the time will come in other departments of the University in which rapid expansion will cease, although no doubt for many subjects this situation will not be reached for a long time.

An important change in the curriculum of the college has been made during the biennium, the details of which are given in the report of the Dean of the college. The most important points in the change were reducing somewhat the amount of work required for graduation, the amount having been found to be excessive, and introducing greater opportunity for election. It is believed that each of these changes will improve the courses by making the students better able to do well the work that is required and by giving more liberal training. It is now recognized that the engineer must be a broadly trained man as well as a technically trained one.

As in the previous biennium, the college has made a number of important contributions to the science of engineering. These relate to many fields. So important has the research work of the College of Engineering become that the regents decided late in the biennium to organize this work as an engineering experiment station.

MEDICAL SCHOOL

In the Medical School, as heretofore, the first two years only of the course are maintained. The increase in the number of students has continued steadily, in 1911-12 the number being 57 and in 1913-14, 82. The number of students outside of the regular medical school who took work in the school has also increased, especially in embryology, anatomy, and physiology. Anatomy and embryology are elected by students majoring in physical education and in biology. General physiology is also taken by students outside of either of these departments. In consequence of these elections outside of the medical students, the amount of teaching in the school is considerably greater than would be estimated if based upon the medical students alone.

During the biennium, as in previous years, the school has been active in contributing to the advancement of the science of medicine, many papers having been published which are listed in the report of the Dean of the school. (See pp. 156-157.)

During the biennium the administration of the state laboratory of hygiene has been transferred to the Medical School and Dean Bardeen was made its Acting Director.

LAW SCHOOL

The registration in the Law School has increased somewhat, being in 1911-12, 158, and in 1913-14, 169.

During the biennium there have been four important resignations, those of Professors W. U. Moore, W. W. Cook, Elden James, and E. G. Lorenzen. These resignations are closely related to the salaries which have been paid in the Law School. The general question of the loss of men in the University on account of the existing standard of salaries will be discussed on a subsequent page.

One important change in policy has been made. Beginning with the class entering the year 1914-15, practice work will be required of the students in law precisely as in engineering and agriculture. This practice work is to be for a period of six months and is to be done in the various law offices of the state. It is hoped that the better law firms of the state will be willing to co-operate with the Law School in making residence in the law office furnish practical training of value. It is realized that this will perhaps not be so easily attainable as in agriculture and engineering; however, it is believed that the lawyers of the state will be sufficiently interested in the advancement of their profession so that they will give a reasonable number of young men in their offices an opportunity for more than routine work, and thus give them some insight in the essentials which are necessary for the beginning of the practice of law.

GRADUATE SCHOOL

The Graduate School has continued its steady growth, the number of students for the regular semesters increasing from 377 in 1911-12 to 437 in 1913-14. Also the number in the Summer Session has greatly increased. The magnitude of the Graduate School has become such that the Regents have decided to create a separate faculty for the Graduate School on the same basis as other faculties and at the head of which there is a dean.

Regarding the scope of the Graduate School and its relation

to the undergraduate school, the statement contained in the general bulletin on the University is here repeated.

The primary purpose of the Graduate School is to give training for those who are expecting to become teachers, investigators, or scholars in their various fields. Its work is a continuation of the advance undergraduate work of the different colleges,—notably letters and science, engineering, and agriculture.

The work of the Graduate School closely connects itself with instruction and with investigation. The fundamentals of the method of producing intellectual leaders have not varied from those of the days of Jesus and Socrates. The Master gathered a group of disciples about him who assisted him in his work and whom he taught. This is essentially the method of the Graduate School. Many of its members assist the professors in their teaching; many assist them in their research work; the professors lead the men to intellectual independence.

The Graduate School is the apex of the University. While in the sense that the number of students in this school is small as compared with those in the undergraduate colleges, and is therefore much less important, in the sense that the Graduate School produces teachers and investigators who are in the future to teach undergraduate students in this and other higher institutions of learning and who are to advance knowledge, the school is of the first importance. Also, the University that has a strong graduate school is an efficient university in undergraduate instruction.

THE SUMMER SESSION

The Summer Session has during the biennium continued its rapid growth, increasing from 1,537 in 1911 to 2,132 in 1913, a growth of 38 per cent. Not only has the number of students increased but their grade has advanced. In 1913, one third of those present were graduate students. About nine tenths of the entire group were doing work for academic credit, and less than one tenth were unclassified or special students. Correlative with the increase in numbers and grade has been an increase in the number of students who have completed their course at the end of the Summer Session, 65 taking degrees in 1912 and 117 in 1913.

For a number of years the income from the tuition of the Summer Session has approached nearer and nearer to the cash ex-

penditures for that session. In 1913 for the first time the two were almost identical. The expenditures for that year were \$32,005 and the receipts \$32,017. Thus that year the total cost of the Summer Session to the University is the amount of the deferred salaries for those who are expecting to take leave of absence. This for thirty instructors in 1913 amounts to \$10,339. This sum therefore represents the cost not only of maintaining the Summer Session, but of maintaining a very satisfactory leave of absence system.

PHYSICAL EDUCATION

The very full report of the Director of the Department of Physical Education discusses almost every aspect of the department; I shall here mention a few points merely for the purpose of emphasis.

GENERAL PARTICIPATION IN OUT-OF-DOOR SPORTS

It is the primary purpose of this department to secure general participation by the student body in physical exercises and especially out-of-door games and sports, since this form of physical exercise is most advantageous. There has been steady development of intramural sports, both in the men's and women's division. These sports include bowling, basketball, fencing, hockey, tennis, baseball, archery, volley ball, field, track, rowing, canoeing, cross country running, etc.

INTERCOLLEGIATE ATHLETICS

Intercollegiate athletics should be a natural culmination of the games and sports between colleges and classes within the student body. However, it can hardly be said that this situation has as yet been reached in the University. Intercollegiate athletics, because of their spectacular nature, attract general interest and therefore are overemphasized. This fact has its advantages and disadvantages. Intercollegiate athletics are one of the factors which keep up the relations between the University and the alumni. In other ways also they are an advantage to the University. On the other side the danger of intercollegiate athletics is that they may demand too much time and energy of the students; or, because of their severe nature, may make demands

upon the physique beyond the normal and thus result in detriment of the participant rather than in his benefit.

This problem is one which has attracted the attention of university authorities for many years; and the University has now taken up the problem on a strictly scientific basis. The Medical Department has made an investigation of the influence upon the participants of the severest form of intercollegiate athletics, rowing. This investigation has shown beyond reasonable doubt that under the conditions in which rowing is carried on at The University of Wisconsin, intercollegiate rowing results in enlargement of the heart to a greater or less extent in more than half of those engaged; and, of those who have suffered from hypertrophy, several have had acute dilatation of the heart. The investigation showed conclusively that intercollegiate rowing instead of being an advantage to the students was a disadvantage. When these facts were placed before the faculty and Regents, (See pp. 278) they promptly decided to discontinue this sport; and this conclusion was accepted without protest, indeed with approval, by the student body, because of the indisputable proof presented by the medical department.

It is planned to extend similar studies to the other more severe lines of intercollegiate athletics. This method of handling such a problem rather than that of emotional appeal, cannot but have a far reaching effect upon intercollegiate athletics; for the studies undertaken here are sure to lead to similar studies in other institutions.

PROFESSIONAL COURSES

The students in the newly established professional courses for those who wish to teach physical education, become play leaders, or recreation directors, have increased in number. The students majoring in this course in 1910-11 being 10 and in 1913-14, 33. With the recognition of the importance of out-of-door exercises for all of the proper kind, there is sure to be an increasing demand for teachers in physical education and the professional course was organized to meet this demand.

MILITARY DEPARTMENT

In the Military Department there have been important changes. The first year of the biennium Captain Collin H. Ball was recalled to other duties by the War Department and Lieu-

tenant Philip G. Wrightson was appointed for work in the Military Department here.

Regular courses of lectures are given in military science which may be taken by the students in the department for credit toward graduation, precisely as other scholastic studies.

Other important steps have been made to increase the efficiency of the department, all of which are set forth in the report of the Commandant.

EXTENSION DIVISION

The Extension Division through action by the legislature received an additional increment of \$25,000 per year over that of the previous biennium. In consequence of this fact it has been practicable to extend the work of the division. The demands for this work have more than kept pace with the possibilities of expansion.

The Correspondence-study work, which in its final educational effects is perhaps the most important department of the division, has continued rapidly to increase. In 1911-12 there were 6,047 students who took correspondence work; in 1913-14, 7,662; an increase of 25 per cent in the active list for the biennium.

The University has continued the preparation and publication of texts to carry on the correspondence work. Eleven such books have now been published. These books are used not only at The University of Wisconsin, but at a considerable number of other institutions, including some of the more important institutions, such as Massachusetts Institute of Technology, the Universities of Illinois, Kansas, and Minnesota.

The Department of Debating and Public Discussion has continued work along the lines of the previous biennium. Like all other departments of the Extension Division, this work has grown. Mr. F. A. Hutchins, who organized the work, died during the biennium and the department has been continued under the direction of Miss Almere L. Scott.

During the biennium the Department of Instruction by Lectures has greatly expanded its work. It is estimated that during each of the years 1912-13, 50,000 people attended lectures and entertainments given by the staff of the University. In the above figures are not included the large numbers attending lectures under the auspices of the University given by outside organizations.

The Department of General Information and Welfare has continued through the Bureau of Municipal Research, the Civic Center Bureau, the Health Instruction Bureau, the Community Music Bureau, and during the biennium the Bureau of Visual Instruction was added.

During the biennium two additional district centers were organized,—the districts of Superior and Wausau in 1912, and the Eau Claire district in 1913, making in all six districts which are now organized.

OTHER BRANCHES OF UNIVERSITY WORK

No summary is here made of the reports of the various administrative officers, the work of whose divisions is not instructional. These reports include those of the Dean of Women, the Chairman of the Committee on Accredited Schools and Appointments, the Director of the Washburn Observatory, the Editor the Librarian, the Architect, the Consulting Engineer, and the Business Manager. (See pp. 232, 309, 263, 320, 315, 339, 333, and 323).

II. THE NEEDS OF THE UNIVERSITY

SALARIES

The question of salaries has been discussed in the three previous biennial reports; but because of the increased cost of living it is still a pressing one at the University. For five years there has been in force a standard plan for advances of men in the staff whose service is satisfactory. A similar practice is in force in the majority of the other American universities. The salary scale here in force is as follows:

Instructors: first year appointment, \$1,000; increase \$100 a year to \$1,500.

Assistant professors: first appointment for three years, \$1,750; second appointment for three years, \$2,000.

Associate professors; first two years, \$2,250; second two years, \$2,500; and third two years and thereafter, \$2,750.

Professors: \$3,000; after three years, \$3,250; after five years, \$3,500.

Men whose first regular appointment as full instructor is in

the College of Letters and Science at a salary of \$1,000 usually have the degree of Doctor of Philosophy. This means that they have spent in addition to their four years of college work a minimum of three years in advance study. They are men averaging from twenty-five to twenty-eight years old. If a man receives his first appointment at \$1,000 when he is twenty-five years old, and is advanced in accordance with the above plan, he will be forty three years old when he receives his first appointment as professor.

This illustration shows how slow the advancement is under the plan in force; and it has not been practicable always to keep the men in the University under the arrangement. In order to hold many of the more capable young men it has been found necessary to advance them faster than the standard rate.

Also since the plan was adopted there has been introduced a higher standard for one class. Those who occupy the leading professorial positions in the larger departments are now receiving salaries of \$3,750 and a few have salaries of \$4,000; in one instance the salary is \$4,500.

Even with these higher rates it has been impracticable to hold a number of our best men. During the last biennium the losses have been especially heavy, namely 7 professors, 3 associate professors, and 16 assistant professors. All of these men we should have been glad to have kept; but they have gone elsewhere because we could not meet the offers of rival institutions. A good illustration of the situation is that in the Law School, where two professors here receiving salaries of \$4,000, have gone to other institutions, one at a salary of \$4,500 and the other at \$5,500.

The loss of high grade men because of the present impracticability of raising our salary scale is indeed a serious matter. The reputation of the University, but far more important, its tone and standards, are primarily dependent upon having in the faculty a considerable number of men of the first rank. If our faculty losses continue during the years to come as rapidly as they have during this biennium, the effect upon the institution will be one which should receive most serious consideration. The loss of three professors in the Law School, two of whose places it has not been practicable to fill permanently as yet, should be made good by securing men of equal ability and experience with

those who have gone elsewhere; even if this involves an increase in the salary scale for that school.

Even if promotions are made in accordance with the very moderate plan now in force, during the next biennium the total salary roll will be increased by a very considerable sum, and this wholly independent of the increase in the number of the staff due to the increasing number of students. The entire cost of increases in the state will be an addition to the amount required for increase in educational salaries.

In order that the mass effect of the increase in salaries during the biennium may appear, there is here inserted a table giving the average salaries for the years 1911-12 and 1913-14 and the percentage of increase.

	1911-12		1913-14		Per cent salary increase
	Number in force	Average salary	Number in force	Average salary	
Professors (including deans and directors).....	79	\$3,273 73	87½	\$5,418 86	4.43
Associate professors.....	37½	2,312 67	49	2,509 18	8.50
Assistant professors.....	90½	1,835 98	96	1,972 39	7.43
Instructors.....	156	1,208 71	190%	1,278 15	5.74
Average of all *.....		1,928 28		2,020 80	4.79

* Compiled on same basis as faculty table on p. 2.

There are slight discrepancies between the figures given for 1911-12 and those contained in the biennial report of that year, for the reason that certain part-time men and men in administrative or field work are not included; and also due to the fact that a professor serving on part time is included as a fractional man and his salary included on that basis. In short, the table is worked out with somewhat greater accuracy than in the report of 1911-12.

It will be seen by this table that the increase in the average salary of each class of the force above assistants varies from 4.43 per cent to 8.50 per cent. The larger percentages of increase are for associate and for assistant professors, that is, the men in the intermediate ranks. The average for the entire staff above assistant for the biennium is 4.79 per cent.

The increased cost of the University due to advance in salaries in accordance with the salary scale above given will apply to all of the colleges without respect to increase in the staff.

The added amount due to increase of staff will vary greatly in the different colleges in proportion to the increase in students in those colleges. The increase due to this latter cause will be nothing in the College of Engineering and in the Law School, will be considerable in the College of Letters and Science, and largest in the College of Agriculture and in Home Economics.

COLLEGE OF LETTERS AND SCIENCE

The prime necessity of the College of Letters and Science is to maintain an adequate staff of high grade men.

To do this, in a college in which 70 per cent of the teaching of the University is done, will require a considerable addition to the income of the college. This then is the first need of the college.

Second to this is that of additional space to provide adequate lecture rooms, laboratories, and offices for the college. This subject was discussed in full in the previous biennial report of the dean and the president. The essential ideas are repeated in the report of the dean contained herewith. To segregate the different departments in the liberal arts, including the modern humanities, political economy, political science, etc., so that each department shall have a pro-seminary room, in which shall be the home of the students, and to give office space for the staff so that they may work in their offices as do the men in the laboratories, will require very considerable additions to the present space. This is a need of the college, however, which will not require additional appropriations, since the preceding legislature had made the necessary appropriations; but there remains now the construction of the building, the beginning of which has been deferred on account of the condition of the state treasury.

At the earliest time the construction of the Physics building and the addition to the Liberal Arts building, provided for by this appropriation, should be begun.

When the Physics Building and the addition to University Hall are constructed, it will be possible for the men in the languages, literature, mathematics, philosophy, political economy, political science, history, and sociology to have departmental centers and adequate offices for their staff. Until office space is thus provided, it cannot be expected that the members of these

departments shall spend their full days at the University as is expected of the men in the sciences and applied sciences. A man in the laboratory sciences who is not in his building, accessible to the students for from thirty to thirty-five hours a week is not regarded as satisfactory. Similarly, the men in the liberal arts should be at the University at work for a minimum of thirty hours per week; but it is not reasonable to expect this, until such time as each man has adequate office facilities so that he may carry on his preparation for his classes and his scholarly work when not actually engaged in teaching, or in conference with students.

It is proposed to locate the Physics Building on Charter Street, north of the Chemical Building. In the basement and two lower floors of this building the Department of Physics will be placed and in the upper two stories the Departments of Political Economy and Commerce. Thus these departments will be well accommodated.

The effect of this building, however, will extend far beyond the improvements of the condition of these three departments; for the space now occupied by them in other buildings will be available for other departments. The removal of Physics from Science Hall will leave the first two stories of that building free. This space will become available for the various Departments of Medicine and for the Department of Geology. Physiology and Pharmacology, now in the Chemical Engineering Building, will be removed to Science Hall; and thus the medical sciences of the first two years will be well provided for in that building for a number of years.

When the changes take place in Science Hall, this building will require a certain amount of reconstruction, which it is estimated will cost \$20,000.

The removal of the Departments of Pharmacology and Physiology from the Chemical Engineering building will release space in that building and thus improve the facilities for Chemical Engineering.

The space now occupied in North and South Halls and in University Hall by Political Economy and Commerce will become available for the remainder of the liberal arts.

This enlargement of the facilities of the college, above outlined, combined with the proposed addition to University Hall, will make possible readjustments in the Departments of English,

Foreign Language, Literature, Mathematics, Education, and Philosophy, so that they will be able to introduce laboratory methods in their instruction, as is done in the sciences.

The building now occupied by the School of Music was constructed for a library and auditorium. At the time of the removal of the University library to the State Historical Library building, the space occupied by the library was adjusted, after a fashion, to meet the needs of the School of Music. However, the building is in a very poor state of repair and there should be rather extensive modifications in it to meet the needs of the School of Music. If this building were reconstructed to adequately meet the needs of the School of Music, the estimated cost would be from \$40,000 to \$60,000.

If it proves impracticable to reconstruct Music Hall the coming biennium, sufficient readjustments of space and emergency repairs should be made so that the school may decently perform its work. It is estimated the necessary charges will cost about \$4,000.

Also the School of Music for its work upon the organ has only a small pipe organ which was second hand fifteen years ago, and it now is in very bad condition. If the Music building is reconstructed, there should be installed a modern instrument of good quality, the cost of which will probably be in the neighborhood of \$7,000.

COLLEGE OF AGRICULTURE

The increased cost of the staff of the College of Agriculture, so far as this is due to average increase in salary, has already been covered. This college is the one in which, as has already been noted, the growth has been the most rapid. Therefore, in it there will need to be a considerable increase in the staff during the biennium. A forecast of the particular departments in which this will be necessary is given in the report of the Dean. If this staff is not expanded as the students grow in number, it is certain that the research work of the college will suffer. As has been pointed out in previous reports, it is easy to show that the research work of the College of Agriculture increases the wealth of the state each year far beyond the entire appropriation to the University for that year. Therefore, any

paring of the agricultural staff which would result in decreasing the productive work of the college would result not in gain to the state, but in loss to it from the material point of view alone.

On the constructional side, the most important requirement is a wing to the Horticultural Building to accommodate the Departments of Agronomy and Plant Pathology. The need for this building and its purpose are fully set forth in the report of the Dean. It is estimated that the cost of this building will be \$83,000; and the cost of its equipment, \$11,000. If this building is provided, the building now occupied by Agronomy will become available for the Department of Economics; and the removal of these departments from the central agricultural building will make available this space for the other departments there located.

Other constructional needs for the Agricultural College at Madison are greenhouses for horticulture, agricultural chemistry, economic entomology, plant pathology, and agronomy, estimated to cost \$12,000; an abattoir, to cost \$7,000; farm buildings at Eagle Heights, \$4,000; dairy barn extensions, \$8,000; wagon shed addition, \$3,500; reconstruction of breeding quarters, \$3,000; root cellar, \$1,000. In addition to the above, small buildings are needed at the branch stations at Ashland, Spooner, and Marshfield, which together are estimated to cost \$6,700.

COLLEGE OF ENGINEERING

Since the number of students in engineering has not materially changed for several years, this college has no large requests to make.

Already an appropriation for \$50,000 for a shop building has been made. This sum should be spent during the coming two years.

MEDICAL SCHOOL

A pressing need of the Medical School is for additional space. When the new Physics building is constructed, the necessary room for the Medical Departments now established will be available in Science Hall. Therefore, the only immediate imperative need of the school is that the Physics building be constructed during the next biennium.

It is desirable also that the third year of the medical course

be added as soon as possible. Under the plan which is contemplated, it is expected to retain as much of the regular instruction at Madison as practicable, but also to use the hospital facilities at Milwaukee, particularly for highly specialized subjects.

UNIVERSITY EXTENSION

Dean Reber estimates that to provide for the necessary expansions in the work of extension will involve an increment of \$25,000 a year for each year of the coming biennium, the same that has been allowed by the state a number of years. This would make the expenditure of the coming biennium over that of the previous biennium for the first year \$25,000 and for the second \$50,000.

STUDENT BUILDINGS

The need for student buildings for men has been dwelt upon in the four previous biennial reports. The arguments several times presented will not be here repeated. At the last session of the legislature, appropriations of \$300,000 were made for a dormitory for men and a commons and union for the men, and \$50,000 for the equipment of the same. At the present time it is not expected to ask any increase in these appropriations for the purposes named. The money is available in March, 1915. The contracts should be let for these buildings as soon as the money is available. Even if this be done, it cannot be expected that the buildings will be ready for occupancy until the autumn of 1916.

The only additional appropriation required for student purposes is for a new infirmary. As explained in the previous biennial report, there is no provision at the Madison General Hospital or at the contagious hospital for students who are afflicted with minor contagious diseases, such as mumps, measles, whooping cough, chicken pox, etc. For the general interest of the student body such persons should be promptly isolated. In order that this may be done and the students receive proper treatment, the University should have a satisfactory infirmary. It is estimated that such a building will cost \$50,000.

PHYSICAL EDUCATION

In the previous biennial report, it was stated that provision should be made for a boat and bath house, together to cost \$7,500. An appropriation was made by the last legislature for this purpose. Its expenditure has been deferred because of the condition of the state treasury in the year 1913-14. The boating facilities are wholly inadequate; and the women have no bathing facilities whatever; therefore, the expenditure of this \$7,500 should be made during the coming biennium.

The most important need of the Department of Physical Education is, however, the construction of a stadium at Camp Randall. The wooden bleachers on the north side of the athletic field, built by the University some years ago, have been condemned as unsafe and have been removed. This will make it necessary for the year 1914-15 to rent seats of the circus type to provide for the necessary games. However, such accommodations are unsatisfactory at best; and, as soon as it is possible, there should be a sufficient part of the permanent stadium constructed to provide for games. While it is wise to rent seats until a permanent solution of the problem can be made, during the next biennium if practicable, we should see the beginning of the structure which is to be the solution for many years to come of seating for athletic games.

It is estimated that to build concrete bleachers, to seat 10,800 persons, to construct a field house within the bleachers, to make a new football field, to do the necessary draining, seeding, and fencing, and to construct a running track, will cost \$53,500.

A portion of Camp Randall, or some other part of the University grounds, should be definitely dedicated to the out-of-door sports for the women, and adapted for the purpose. At this area there should be placed a field house, containing necessary dressing rooms and toilet facilities. At the present time the athletic work of the women, other than tennis, is located on the grounds of Memorial Park; and no structure is there available to the women except a tent.

It is estimated that a field house adequate to meet the needs of the women will cost \$5,000.

Also there will be economy in putting a filter in the men's gymnasium pool, so that the water may be reused, instead of

every few days pumping in cold water from the lake and heating the same. The cost of such a filter is estimated at \$1,500.

MILITARY DEPARTMENT

As has been stated in two previous biennial reports, the Military Department should have a structure at Camp Randall dedicated to its needs. By the placing of drill in the morning hours as well as in the afternoon, the congestion in the Gymnasium has been somewhat reduced; but for the best service the uses of the two are incompatible. For fuller statement reference is made to the report of the Commandant. (See p. 302.)

CENTRAL HEATING STATION

The cost of permanent improvements in the Central Heating Station for the years 1915-16 and 1916-17, in order to provide for the heating of additional buildings, is estimated by the Business Manager at \$20,000. For further general purposes the following sums are needed: Electrical generating station, \$25,000; alternating current, underground power lines, \$3,000; campus lighting, \$5,000; changing direct current motors to alternating current, \$3,000; chemistry stores shed, \$1,500; and service frame building, \$1,800.

STATE MUSEUM

Since the situation in regard to a state museum is unchanged, I repeat what was said two years ago. While this building should be associated with the University and be under its administration, it should be a general museum. It is planned to have such a structure occupy the north side of the quadrangle on University hill. Into this museum should go the general collections of the University, other than those which are necessary for instruction. Also in it should be ample space for art. In short, it is the plan to have this building serve the well known general educational purposes of public museums, not only for the students at the University but for the state at large.

While a museum building is extremely desirable, unless the funds for it can be obtained from private sources, its construction must be postponed.

SUMMARY OF NEW CONSTRUCTION

The appropriations needed for new construction and the proposed distribution of the same during the years 1915-16 and 1916-17 are summarized by the following table:

Budget estimates of items for new construction, biennium 1915-16 and 1916-17

	1915-16.	1916-17.
<i>College of Letters and Science:</i>		
Science Hall remodeling.....		\$20,000
<i>College of Agriculture:</i>		
Plant pathology building.....	\$83,000	
Equipment.....		11,000
Horticultural greenhouse (one each year).....	2,000	2,000
Agricultural chemistry and economic entomology greenhouse.....	2,000	
Plant pathology and agronomy. (Three greenhouses).....		6,000
Abattoir.....		7,000
Farm buildings—Eagle Heights.....	4,000	
Dairy barn extension.....	8,000	
Wagon shed addition.....		3,500
Re-construction breeding quarters.....	3,000	
Root cellar.....		1,000
BRANCH STATIONS		
Ashland—Granary, pump house, dairy barn annex, grain sheds, milk house, sewage system.....	1,200	1,600
Spooner—Forage and stock barn, sewage system, poultry.....	1,200	1,200
Marshfield—Granary, poultry, sewage system.....	750	750
<i>Student buildings:</i>		
New infirmary.....		50,000
<i>Physical Education:</i>		
CAMP RANDALL		
Concrete bleachers, capacity 10,800 persons.....	13,300	16,700
Field house within same.....		5,000
Football field, 6½ acres.....		9,000
Finishing, draining, seeding, fencing.....		6,500
Running track.....		3,000
Field house for women.....		5,000
Gymnasium filter.....	1,500	
<i>General Purposes:</i>		
Utility connections (steam and electric) to proposed dormitories.....		30,000
Electrical generating station.....	25,000	
Pumping station building and equipment.....	20,000	
Alternating current power lines underground to University Hall and College of Agriculture.....	3,000	
Campus lighting.....	5,000	
Changing part of direct current motors to alternating current.....	3,000	
Chemistry stores shed.....	1,500	
Service frame building.....	1,800	
Total.....	\$179,250	\$179,250
		\$358,500

LAND

For land during the next biennium, options on three lots in the area west of Charter Street and north of University Avenue, have been obtained, aggregating \$27,500.

It is not expected at the present time greatly to extend the purchases east of Park Street; but with references to future expansions of the Historical Library Building, the land north of Langdon Street should be acquired as far as the Young Men's Christian Association Building. At the present time the Raymer property is on the market, and the University has an option on this place at \$45,000. During the existence of this option the property is rented to the University. The building is being used temporarily for a student infirmary. This is a very convenient place for such infirmary, since it is directly adjacent to the student health building.

The extension work in Milwaukee is centered in the old Milwaukee Academy. This building has been rented for a period of five years, with an option on the property at \$25,000, to September 1, 1915. The option given on this property is at a low figure, the owner desiring that the building be used for educational purposes.

The option expires within a few months after the probable adjournment of the 1915 legislature; and if the property is to be purchased, provision must be made by that legislature.

GENERAL CONSIDERATIONS

It has often been remarked that during the past ten years the cost of the University has been much increased. This is true; but the facts presented in this and the four previous biennial reports give an explanation of this increase.

The University is doing vastly more for the state than ever before. The University costs much because it does much for the State.

Oftentimes, however, it is not appreciated how large a part of the income of the University is derived from other sources than the state, nor how large a part of that derived from the state is for general state purposes.

REASONS FOR INCREASED COST

Extension: An important factor in the larger cost of the University at the present time is that of extension, there having been available for the operation of this work (including the fees received) during the year 1912-13, \$185,000, and 1913-14, \$237,380. Ten years ago the only fund available for extension

was the small amount for farmers' institutes, \$12,000. Thus the cost of this work during ten years has increased twenty-fold. This expansion has taken place, not for the advantage of the students at Madison, but for the benefit of the state as a whole. It has taken place rapidly because there has been so strong a demand in all parts of the state for expansion of the work. The legislature, responding to the demand, has increased appropriations from year to year until, as already stated, the amount for the second year of the biennium was \$237,380.

The Large Capital Account: Another factor which is very important in the increased cost of the University has been the necessity for putting a large sum into capital account during the past decade.

Ten years ago the University was very inadequately housed. During the ten years the students have doubled, and it has been necessary to add greatly to the number of buildings.

Correlative with this increase in buildings, large additions to the apparatus have been necessary; and the library, ten years ago wholly inadequate, has been made reasonably satisfactory. The outlay for books and apparatus during the ten years just past has been large.

Also, ten years ago, the Regents saw that the grounds were far too small to meet the future needs of a great university; and it was appreciated by them that to delay the enlargement of the grounds would result in acquiring land at a very greatly increased cost in the future. Consequently, additional grounds have been purchased to meet the probable future needs of the University.

In consequence of these facts, there have gone into capital account in the ten years from 1904-5 to 1913-14, inclusive, the following sums:

Buildings	\$2,328,211.59
Land	509,366.34
Books and apparatus.....	978,023.92
Total	<u>\$3,815,601.85</u>

The entire capital account to the end of 1913-14 is estimated at \$5,788,770.50.

The University property, represented by this amount, includes the following:—

The land around Madison, comprises the campus and the Hill

farm, 927.83 acres; and the land at sub-stations, 482.64 acres, aggregating 1,410.47 acres.

The buildings of the University include 36 large buildings, 43 of moderate size, and numerous small buildings. In these buildings and the State Historical Library Building are the books and apparatus of the University.

It is a notable fact that the entire valuation of the buildings of the University to the end of the fiscal year, ending June 30, 1914, amounting to \$3,581,606.50, is somewhat more than one-half of the estimated cost of \$6,000,000 for the state capitol building; and that the estimated value of the entire physical plant of the University, including buildings and equipment, grounds, library, and apparatus, together aggregating \$5,788,770.50 is less than the proposed cost of the capitol building without furniture and equipment.

In making this statement, it is fully realized that the cost of the capitol building is no more than justified for this purpose in a great state, and that the building is being economically constructed; but it is also evident that the University has been economical in the development of its physical property.

In considering the expense of the instruction of students at Madison, the amount of capital account is often included. It is no more just to charge this amount to the cost of current instruction at Madison than it would be to charge the state capitol building, costing \$6,000,000, as expenses to the state of the officers and legislators who occupied that building during the ten-year period of its construction. The capitol building is an investment made by the state for scores of years, probably centuries, to come. The capital account of the University is of the same class, since the lands purchased will last forever; and all of the important buildings which have been constructed during the past decade are of a permanent reinforced concrete type; they should endure for hundreds of years.

The Contributions of Students: Of the income of the University a large amount is derived from the students. During the decade the non-resident fees have been increased by the Regents from \$30 in Letters and Science and Agriculture, and \$40 in Engineering and Pharmacy, to \$70 a year, in addition to the incidental fee; and the last legislature made a further increase of these fees to \$100 per annum. For 1903-4 the student fees were \$112,466.14. For the year 1913-14, there were derived

from student fees \$301,172.09; and this sum will be increased by many thousands of dollars next year. Thus the student fees in ten years have increased nearly three fold, or by \$188,705.95; and, therefore, to a very considerable extent the increased cost of the University has been borne by the students.

Funds from Business Transactions: A considerable portion of the receipts of the University result from business transactions, such as from the purchase of milk and the sale of butter and cheese. The business transactions on this account amounted for the year 1912-13 to \$164,146.97, and for the year 1913-14 to \$279,800.81.

Contributions from the Federal Government: Another source of money is the federal government, from which \$80,000 a year has been derived for a number of years, and which amount will be increased next year because of the passage of the Smith-Lever extension bill.

Gifts and Interest on Investment: From the interest on the University fund and from gifts considerable amounts of money are obtained. These sums in 1912-13 aggregated \$43,119.71, and in 1913-14, \$41,184.83.

The report of the Business Manager, p. 323, shows that taking into account the above factors, combined with other smaller ones not mentioned, the cost to the state of the conduct of the University during the regular session for teaching and research at Madison was, for the year 1913-14, \$1,075,860.67. Of this a careful estimate shows that there was spent for research work \$244,454.83 and for resident instruction for the two semesters \$691,433.77. While the number of individual students is much larger, the weighted average attendance for the full two semesters was 4,939. This gives the cost per student to the state of resident instruction for the two regular semesters about \$140 per annum. The details leading to this result and the method of arriving at it are explained fully in the report of the Business Manager. (See p. 323.)

THE GROWTH OF TEN YEARS

The growth of the University during the past ten years has been very great; indeed, more rapid than ever before. This is shown not only by the increase in students attending the University, but by the number of degrees granted.

INCREASE IN NUMBER OF STUDENTS

During the past ten years the students attending at Madison have more than doubled. In 1903-4, in all departments of the University the number of students was 3,164; for the year 1913-14 the number was 6,765. As showing the range of the work of the students and the growth of development, the following table is inserted:

Table showing number and distribution of students at beginning and ending of a decade.

	1903-4	1913-14
Graduate school.....	115*	437*
College of Letters and Science.....	1,325	2,653
Included in the above are the following:		
Course in Commerce.....	177	396
Course in Philosophy.....	65	45
Course in Journalism.....		88
Course in Pharmacy.....	36	40
Course in Chemistry.....		73
Course in Training of Teachers.....		387
College of Engineering.....		744
College of Agriculture.....		60
Long Course.....	60	682
Middle Course.....		135
Home Economics.....		205
Medical School.....		
Law School.....	201	82
School of Music.....	172	169
Wisconsin Library School.....		95
		43
Total.....	2,502	4,802
Deducting twice counted.....	76	116
Net Total, Regular Session.....	2,426	4,686
Summer Session.....	401	2,132
Deducting those who returned in fall.....	127	273
Additional Enrollment, College of Agriculture.....		465
Short Course.....	310	450
Dairy Course.....	155	155
Forest Rangers Course.....		28
Grand Total.....	3,164	6,765

*Not carried in total because included in lists below.

Without commenting in detail upon the above table, the following points are noticeable:

First, is the great growth in a decade of the College of Letters and Science, from 1,325 to 2,653. Also in this college the Courses in Journalism, Chemistry, and the Training of Teachers have been organized. However, the greatest change is in the College of Agriculture, the students of which college, meeting the regular requirements for entrance to the University, have increased in numbers from 60 to 1,022. In this college the Mid-

dle Course and the Home Economics Course have been organized. The College of Engineering, with fluctuations, has remained substantially stationary. The Medical School has been organized. The attendance in the Law School has somewhat decreased; but this is explained by the fact that the entrance requirements have been advanced by two years of college work. The number in the School of Music has decreased; but this has been due to the elimination of students not of college grade.

THE NUMBER OF DEGREES GRANTED

But perhaps the most striking evidence of the growth of the University and the importance of its work during the past ten years is furnished by the number who have completed their courses and taken their places in the various communities of the state and the country. The facts in this respect are shown by the number of degrees which have been granted. The table below gives the number of degrees granted by the University since its foundations to ten years ago, for the last five bienniums, and the totals since the foundation of the University to the end of 1913-14.

Table showing number of degrees granted

	From 1854 to June 30, 1904	From July 1, 1904 to June 30, 1914	From 1854 to June 30, 1914
First degree.....	5,425	5,247	10,672
Master.....	232	770	1,002
Engineer.....	61	199	260
Doctor of Public Health .....	.....	1	1
Doctor of Philosophy.....	67	189	256
Totals.....	5,785	6,406	12,191

From this table it appears that the number of degrees granted by the University during the past ten years is 6,406. This is greater than the number granted from the foundation of the University to ten years ago. Since the instructional work is roughly in proportion to the number of degrees granted, it is probable that the absolute quantity of instructional work for the last five bienniums is about equivalent to that which was done throughout the history of the University of 1904.

There is probably no better gauge of the value of the work of

an institution than the number and character of the degrees which have been granted. An examination of the above table shows that the number of first degrees for the past decade is not quite as large as the number for the previous history of the University. For the Master's degree and the professional degree of Engineer, the number in each case is over three times as great for the past ten years as during the previous history of the University. The degree of Doctor of Philosophy is the highest degree in course. It is the one which more than any other represents the stage of development of the University in the advancement of knowledge in the world. It is significant that for this degree also, as well as the other advanced degrees, almost three times as many have been granted during the past ten years as was granted from the foundation of the University until ten years ago.

CONCLUSION

Concluding this report I repeat the conclusion contained in Bulletin 666 of the University published at the end of the biennium.

"In conclusion it may be said that the cost of the University although large, is more than justified by results. The state has been liberal to the University; but the University, in turn, has rendered rich service to the commonwealth. It is safe to say that if the state had been less liberal to the University than it has been in the past, today the state would be poorer in consequence. In short, appropriations by the state for the University have been returned manifold, and will continue to be returned in the future in even larger measure. Can any other investments made by the state show larger dividends even from the material point of view?

"However, it is not from the material point primarily that the University is to be judged. It is the fundamental purpose of the University to train men and women so that they will be powerful factors in the advancement of the commonwealth.

"The College of Letters and Science is the trunk of the University. Until thirty years ago, with the exception of the beginnings of one or two of the professional schools, it constituted the University. Out of this college have grown, as branches,

the various professional schools, some of which have been organized as independent colleges and others of which still remain in the college as definite courses.

"The College of Letters and Science is the college which does the general educational work of the University, both for the students registered in that college and for the students in the professional schools. Also in the College of Letters and Science there have been organized a number of professional courses which in other institutions are usually organized as separate schools and colleges.

"The close relations between the college of liberal arts and the schools of applied knowledge are most fortunate, in that it has given to the students in the vocational schools something of the spirit of that college.

"Until rather recently the law, medicine, and ministry have been regarded, as the only learned professions. Now that engineering, agriculture, home economics, etc., are taught as sciences, they have become professions. These vocations in former times were essentially manual arts. Now that they involve training in the fundamental sciences, the emphasis in these vocations is transferred to mental work. Thus the Babcock test does not simply give material wealth. Because it requires an understanding of scientific methods as applied to dairy products, it gives to the dairymen a broader intellectual life. Similarly, household duties, which of necessity involve endless repetition of the same things, become more interesting when placed on a scientific basis.

"It is the aim of the University not only in its college of liberal arts, but in all its schools of applied knowledge, to give men and women, trained both at Madison and through extension, a broader intellectual horizon. These men and women contribute to the intellectual advancement of the state. They not only increase its wealth, but they turn the wealth into social channels. For the highest social development material prosperity is essential.

"Therefore, while the material annual gain to the state, due to the University, amounts to many millions of dollars, these gains, however large, are subordinate to its work in developing thousands of men and women for service to the state and nation. All materials produced by man are for man. If, then, the University were to add material wealth to the state and neglect her

citizens, it would leave unperformed its most important function. The development of well-trained, efficient, high-minded men must ever be the central purpose of the University. They are indeed the soul among its creations, without which all else is of no avail. Such men are found throughout the state. In no small measure the prestige of Wisconsin among the commonwealths of the United States is due to their work.

CHARLES R. VAN HISE,
President of the University.

REPORT OF THE DEAN OF THE COLLEGE OF LETTERS AND SCIENCE

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: I submit herewith my biennial report as Dean of the College of Letters and Science.

CHANGES IN THE FACULTY

The ordinary changes in the faculty, caused by the resignation of its members, especially instructors and assistants, have been numerous, as usual, and many promotions have been made, all of which are stated on another page of this report. Some of the important changes in the permanent staff may be briefly indicated here.

The only death in the faculty that has occurred within the period is that of Emeritus Professor Daniells, who died October 12, 1912. His death was noted in my report for 1910-12.

In 1913 Professor Paul S. Reinsch of the Department of Political Science was appointed Minister to China and was granted leave of absence to accept this position. His return to academic work is doubtful.

In 1911 Professor John R. Commons was appointed member of the Wisconsin Industrial Commission for the term of two years, and during that period was able to carry but little teaching. In 1913 he declined a reappointment on the Commission and resumed full academic work.

Mr. Thomas Wood Stevens, appointed Lecturer in Art in 1912, resigned at the close of the year to accept a position in Pittsburgh. His place has not yet been filled, although a successor is greatly needed.

Associate Professor R. L. Lyman, first appointed in 1905 and since 1906 in charge of public speaking, resigned in 1913 and was succeeded by Associate Professor J. M. O'Neill, formerly Assistant Professor of Public Speaking in Dartmouth.

In the same year two appointments were made in this college, jointly with the Extension Department: Professor P. W. Dykema in the School of Music and Associate Professor J. L. Gillin in the Department of Sociology.

Professor L. A. Coerne, since 1910 Director of the School of Music, resigned in 1914, and was succeeded by Dr. Charles H. Mills, formerly Director of Music at the University of Illinois.

Associate Professor H. L. McBain of the Department of Political Science, resigned in 1913 to accept a position in Columbia University. In 1914 Dr. F. A. Ogg, Professor of History in Simmons College, was appointed Associate Professor of Political Science and enters on his duties with the year 1914-15.

Professor M. P. Ravenel, since 1907 Professor of Bacteriology, resigned in 1914 to accept a position in the University of Missouri.

NUMBER OF STUDENTS

The number of students registered during the period covered by this report is as follows:

	1911-12	1912-13	1913-14
Graduate.....	300	302	334
Undergraduate.....	2,204	2,226	2,319
	2,504	2,528	2,653

The college received a great increase in numbers in 1910-11 when 231 students were added to its enrollment. For the next two years the number of undergraduates remained almost stationary, increasing only from 2,204 to 2,226. A new increase came in the fall of 1913, when the freshman class was larger by 147 than its predecessor. The increase in the undergraduate body was not so great, since the senior class was smaller than that of 1913. The freshman class of 1914 is but little larger than its predecessor, but the University increased by more than 400 students and the college is larger by more than 200 stu-

dents than in the preceding year. This increase is larger than any that the college has received since 1910.

In my last biennial report I expressed the belief that the future increase of the college would be slow, especially in the lower classes. The history of the past two years seems to show rather the futility of prediction than to confirm my opinion.

PROGRESS OF THE COLLEGE

In my report for 1908-10, I mentioned an experiment tried by the college, allowing the substitution of the thesis course for the thesis which is regularly required from seniors, and in the following report I gave statistics of the result of this experiment. I continue these statistics for the two years covered by this report.

	1913			1914		
	Majors	Theses	Thesis Courses	Majors	Theses	Thesis Courses
English.....	98	52	46	123	75	48
German.....	30	15	15	24	10	14
French.....	8	1	7	8	2	6
Latin.....	18	6	12	19	13	6
Mathematics.....	14	14	6	7	0	7
	168	88	80	181	100	81

In the four language departments the percentage of thesis course students has been as follows: 1911, 23 per cent; 1912, 39 per cent; 1913, 52 per cent; 1914, 42 per cent.

In 1911 the Department of History reported one student in the thesis course, and botany had one in 1912. No such reports were received for the later years. The only significant new movement during the biennium was in the Department of Mathematics, where all of the students taking their senior thesis in that subject were placed in a thesis course. This was probably rather a change in the form than in the substance of their work. The thesis course seems to have established itself in the language departments, and there about one-half of the students are likely to take such courses. In other departments, except mathematics, practically no use has been made of the privilege.

The Department of English reports that some six students in thesis courses turned in a regular thesis as the result of their work instead of the several papers and topics permitted in the course. It is not unlikely that this will be the case of an increasing number of the abler students who enroll for the thesis course. On the whole, the arrangement is proving a useful addition to the work of senior year.

The most important matters in the development of the college are the completion of the Biology Building and of the Wisconsin High School. The first named building was occupied in the fall of 1912 as was stated in my report for 1910-12. It has proved a very successful building in its interior arrangement. The large entrance hall which is intended for a museum, has not as yet been equipped with cases and specimens. A few of the old museum cases from Science Hall have been brought in, but they are far too few to occupy the space or to contain an adequate student collection of plants and animals. This should be provided as soon as funds will permit.

The removal of Botany and Zoology from Science Hall has greatly relieved all departments in that building except Physics.

The Biology Building is perhaps the only one which we have built in recent years, on a scale planned to provide for future growth of the college. It was hoped that the building would be amply large enough to take care of as much as five years' growth; but as present appearances indicate, many of the laboratories will be over-crowded before this time limit is reached.

In 1914 the Department of Bacteriology was divided. General Bacteriology is now placed in the laboratories of the College of Agriculture and Medical Bacteriology has been placed in Science Hall in charge of the Medical School. This change was made because the enlargement of the laboratories of the College of Agriculture permitted the transfer of the general course to that building. The space in South Hall vacated by Bacteriology has been in a great part assigned to the Department of Journalism, thus giving some slight relief to the congestion of University Hall. Most of the remaining space has been given to the use of the Hygienic Laboratory which now occupies the entire upper floor of South Hall. The completion of the building for Home Economics and the University Extension Division in 1914 was followed by the removal from Univer-

sity Hall of the offices of the Extension Division. Thus another small relief was given to the over-crowded condition of University Hall.

In the last report I noted the establishment of the Carl Schurz Memorial Professorship. The first incumbent of the position was Professor Eugen Kühnemann of the University of Breslau. He lectured on German Literature, speaking both in German and in English, during the first semester of 1912-13 and reached great success. The University could not wish for a more auspicious beginning for an enterprise that promises great intellectual profit and inspiration.

Prof. George Edward Woodberry was present during the second semester of 1913-14 as special lecturer on English Literature. His lectures were widely successful, attracting and holding large audiences. Still better, he exerted a great influence on the students, stimulating their interest in letters and guiding them to an intelligent love of literature.

The most important change of the biennium is intimately associated with the completion of the building of the Wisconsin-High School which was occupied for the first time with the opening of the year 1914-15. This building gives at once a laboratory and a center for the work of the Course for the Training of Teachers and its completion marks an important point in the development of that course.

In my report for 1902-04 I stated that the most imperative need of the college was an enlarged income. In the report for 1904-06 when the income of the college had been increased, the two important matters discussed were, the Medical School (authorized by the legislature of 1907) and the course for the Training of Teachers. The appointment out of which the Medical School came was that of Dr. Bardeen as Professor of Anatomy in 1904. In a similar sense the appointment of Professor Elliott in 1905 was significant for the Course for the Training of Teachers. The necessary development of the Medical School has removed it from the College of Letters and Science in which the pre-medical course grew up. The teachers' course has remained as the enterprise of the college to which it has devoted a very large share of the funds available for its enlargement.

These two projects were fully discussed with the legislature of 1907 which authorized the Medical School. The University

authorities then promised that if the Medical School was established the training of teachers would be well cared for and developed as rapidly as possible.

The Course for the Training of Teachers first appeared in the budget for 1908-09 with an appropriation of \$5,000 besides \$8,600 for the Department of Education, which is intimately associated with the work of the course. These appropriations have steadily grown and in the budget for 1914-15 the sums appropriated were, for training of teachers, \$17,216.66; Wisconsin High School \$21,850 (salaries and educational expenses); Department of Education \$14,875. The total is more than four times that appropriated six years earlier and to it must be added the increased cost of departmental courses for training teachers and the administration of the Wisconsin High School. The high school building has cost about \$110,000. The University has therefore kept its word in regard to caring for this enterprise, so important to the secondary education of the state.

The educational policy which should underlie this course has proved one of the most difficult problems which the college has had to face and no doubt there has been more thought and more discussion expended upon it, than upon any other single question during the past few years. Some of the difficulties attending it were discussed in my biennial report for 1908-10 and need not be repeated here. They may be summed up briefly in the apt words, "Teaching in secondary schools is not so much of a profession, as a procession". The fundamental question has been this, "Shall the University demand that all persons, who are to receive teacher's certificates, must convert their college course into a professional course or shall it permit them to adjust this course in large measure for the forty or more years of life which will follow the three or four probable years of teaching?" The question as stated in this way can receive but one answer. On the other hand there is a well grounded demand on the part of the schools for better prepared teachers; and the schools are more insistent in calling for early professional preparation just because the service of the average teacher is brief and the school can not afford the time for training.

On the whole the college has followed the policy of giving what seems an adequate professional training for teaching without converting the four years into a professional course. The

earlier adjustment of the Course for the Training of Teachers was necessarily experimental and was conditioned by the equipment of the college as well as by many other matters. The completion of the Wisconsin High School gave at once the opportunity and the necessity for readjustment.

As was expected the question of readjustment developed wide divergence of opinion in the faculty but the following program was adopted to go into effect at the beginning of the year 1914-15.

UNIVERSITY TEACHERS CERTIFICATE

For Students Graduating after January 1, 1916

A. The requirements for the University Teachers Certificate shall consist, in addition to the work done in the major and minor subjects, of the following credits:

	<i>Maximum</i>	<i>Minimum</i>
Philosophy I (Psychology).....	3 cr.	3 cr.
Education	12 cr.	12 cr.
Departmental Teachers Course (Major).....	4 cr.	2 cr.
Departmental Teachers Course (Minor).....	2 cr.	....
Total	21 cr.	17 cr.

The maximum requirements of four credits for the departmental teachers course in the major subject, and of two credits for the departmental teachers course in the minor subject are at the option of the department. The minimum of two credits in the departmental teachers course of the major must be secured by *all* students.

The requirement in Education is subject to the following conditions:

- (1) A minimum of *twelve* credits in Education is required.*
- (2) These twelve required credits are to be distributed as follows:
 - (a) Educational Practice (Education A)..... 2 credits
 - (b) Elementary courses (see note 4 below)..... 8 credits
 - (c) Advanced course (see note 5 below)..... 2 credits
- (3) The course in Educational Practice (Education A) is required of all students. Graduates of state normal schools and teachers of experience may, however, upon the presentation of satisfactory evidence of teaching ability, be exempted from this requirement by special action of the Department of Education.
- (4) The eight credits in elementary courses in Education must be acquired from courses 1, 6, 11, 41. This requirement may be fulfilled by taking each of the elementary courses for two credits, or by taking two of the courses for three credits each, and one course for two credits. Normal school graduates do not fulfill this requirement (see note 6).

* Except for normal school graduates; see notes 3, 4, and 6.

- (5) The two credits in an advanced course in Education must be acquired from one of the following courses: 102, 103, 104a, 104b, 112, 113, 144.
- (6) Graduates of state normal schools fulfilling the requirements for the University Teachers Certificate must present a minimum of six credits from advanced courses in Education.

B. Candidates for the University Teachers Certificate must secure *eight* credits in addition to the one hundred and twenty credits required for the Bachelor's degree; and for such certificate the normal residence requirement is one summer session in addition to the regular residence requirement.

This additional summer session may not be taken earlier than the close of the sophomore year.

Students of ability, allowed under the general regulations to take more than the regular amount of work, may be permitted by the Committee on the Training of Teachers to acquire the eight extra credits without attendance upon the additional summer session.

The privilege of receiving the University Teachers Certificate in four years without a summer session will be granted only to students of approved ability. Such students may apply to the Committee on the Training of Teachers for this privilege during the second semester of their junior year, stating the courses they have completed, with their standings therein.

C. The following order and arrangement in the fulfillment of the above special requirements as approved by the Committee on the Training of Teachers are to be regarded as normal and are recommended to the attention of students and advisers.

- (1) Before the end of the second semester of the junior year credit in Philosophy I (three credits) and not less than *four* credits in elementary courses in Education should be acquired.

- (2) The six credits to be earned by summer session attendance should be divided between the major subject, and Education (elementary or advanced).

- (3) During the first semester of the senior year credit in the departmental teachers course of the major, and at least *one* credit in Education A (Educational Practice) should be acquired.

- (4) During the second semester of the senior year credit in the departmental teachers course of the selected minor or minors and the remaining credit in Education A (Educational Practice) should be acquired.

The principal effects of these changes are as follows: 1. To increase the amount required in the Department of Education from seven credits to twelve. 2. To permit the department in which the major study is taken to require four credits in the teachers' course. 3. To require candidates for the teachers' certificates to gain eight credits in addition to the one hundred and

twenty required for a Bachelor's degree. 4. To add a summer session to the normal period of residence for those who desire the teacher's certificate.

In requiring additional credits and residence for the teacher's certificate, the course assumes a more professional character. The aim of the faculty was to add such professional work as was necessary for the teacher without unduly cutting into the time already devoted to academic work.

Thus the course for the training of teachers, as reorganized and provided with a building, enters on a new period of its life with the close of the time covered by this report. The course as modified by faculty discussions and adjustment is now to undergo the test which experience and time will bring. These will doubtless modify it in detail, but I believe the general plan will prove sound.

During the past few years several writers have investigated the distribution of work of the students of the colleges. The most complete study was that made by Dean Ferry of Williams College, printed in his report for 1913. To this study were contributed statistics from Wisconsin which had been compiled by myself and which while correct in general, did not pretend to great accuracy. During the past months a careful study of this subject has been made in the office of the Business Manager and in the immediate charge of Associate Professor E. B. Skinner. The following table shows the result stated in semester hours or credits. By this term is meant the amount of credit toward graduation made by a student who recites once a week for a semester. A class of twenty-five students reciting three times a week for a semester would count seventy-five credits for the department. A class of sixty students meeting five times a week for a semester would give three hundred semester hours. In the table the semester hours for the two semesters are added together. The hours for the first semester are the larger for the college since the attendance is larger in the first half of the year. The ratio of credits differs greatly for the various departments, but in the college as a whole the first semester is to the second about in the ratio of 54:46.

TABLE I.

	Number of credits, College of Letters and Science, 1908-1913						Percentage of credits 1908-1913	
	1908	1909	1910	1911	1912	1913	1908-1913	
Astronomy	87	71	81	70	78	79	%	%
Bacteriology	677	969	1,206	1,606	1,608	1,491	0.1	0.1
Botany	1,379	2,118	2,207	2,424	2,653	3,530	1.7	1.0
Chemistry	6,800	6,859	8,135	8,895	9,908	10,908	3.8	2.0
Education	1,839	1,878	1,679	1,714	2,130	2,173	11.7	10.0
English	8,968	10,746	12,067	11,900	11,386	13,119	2.7	2.3
Geology	2,593	2,886	3,008	3,389	3,626	3,219	13.2	14.1
German	8,562	9,369	11,093	9,960	10,043	10,256	3.4	3.8
Greek	465	422	375	426	327	258	12.5	10.9
Hebrew	179	243	237	232	223	135	0.7	0.3
History	4,564	5,193	6,358	7,411	7,436	7,827	0.3	0.1
Journalism		304	385	403	566	635	6.7	8.4
Latin	2,287	1,831	1,988	1,798	1,292	1,302	.....	0.7
Manual Arts			102	246	448	609	3.4	1.4
Mathematics	7,896	7,027	7,351	6,362	6,954	7,264	.....	0.8
Meteorology	40	45	68	84	75	61	11.4	7.8
Pharmacy	485	641	1,120	705	765	523	0.1	0.1
Philosophy	1,316	1,803	2,799	2,934	2,692	3,085	0.7	0.6
Physics	4,381	4,353	4,774	4,644	4,579	5,075	1.9	3.2
Pol. Economy	5,246	5,655	5,736	6,292	8,649	8,710	6.4	5.4
Pol. Science	2,060	2,735	3,065	2,123	2,146	1,740	7.7	9.3
Public Speaking	852	852	800	594	944	985	3.0	1.9
Romance Languages	6,555	7,788	7,429	7,929	7,560	7,840	1.2	1.1
Scandinavian Languages	390	568	451	393	415	352	9.6	8.4
Zoology	686	726	734	1,282	1,307	1,961	0.6	0.4
	69,317	75,682	83,488	83,815	87,785	98,087	1.0	2.0

The table shows that the amount of the teaching done in the college increased more than 36 per cent during the five years for which statistics are given. Nearly three-fourths of the teaching done by the University is in the College of Letters and Science.

The relative changes in the several departments during the five-year period are more clearly shown by the changes in the percentage of the teaching done than by the number of semester hours. Yet it must be added that no wide range of conclusions should be drawn from these statistics. A growing college in a changing community alters in ways quite other than through the changing intellectual tastes of the students. Changes in required studies, in the number of hours demanded in elementary courses, in the number of freshmen students, in the courses of study in the other colleges of the University and in the number of their students—all these are more effective numerically than are intellectual tastes. A large or a small freshman class at once affects the registration in English, as is illustrated in one way in 1912 and in the other way in 1913. In 1912 Political

Economy increased its elementary course from three to four credits and at the same time the Commerce Course was growing rapidly. Mathematics have been affected unfavorably of late by the stationary condition of the College of Engineering and by changes in the required mathematics in the College of Agriculture. Many similar statements would have to be made if the alterations in the semester hour percentages were closely analyzed.

Dean Ferry grouped the several departments into three divisions: I. Foreign languages. II. English, philosophy, economics, government, etc. III. Mathematics and science. The percentile results for Wisconsin, thus arranged, are shown in the following table:

PERCENTAGE OF STUDENT CREDITS IN THE SEVERAL GROUPS OF DEPARTMENTS.

	1908	1913
Division I.....	27.1	31.5
Division II.....	36.4	41.8
Division III.....	36.5	36.6

The table shows that during the five-year period the relative amount in teaching of science and mathematics remained almost unchanged. There was a relative decline in the foreign languages and an increase in division II. This increase was greatest in philosophy and education; much less relatively in the modern humanities and English. These changes are what would be expected from the rapid growth and development of the Course for the Training of Teachers and the marked increase of the Commerce Course. The development of the Course for the Training of Teachers increases the relative amount of teaching in education but does not increase in a similar way that of the departments in which the graduates will teach, since in any case they would probably have elected their major study in these departments.

In this classification division II appears to be a somewhat heterogeneous assemblage. It may well be subdivided into three sections: A. history, economics, government; B. philosophy, education; C. English, public speaking, journalism. Division III may also be subdivided into: A. mathematics; B. sciences.

If the percentile distribution of teaching in the College of Letters and Science is grouped according to this classification and the study is extended back to certain years, the following approximate results appear.

PERCENTAGE OF STUDENT CREDITS IN VARIOUS GROUPS OF DEPARTMENTS.

	1886	1893	1903	1908	1913
Division I.....	27.9	25.9	26.7	27.1	21.5
Division II A.....	13.3	16.4	16.2	17.4	19.6
Division II B.....	7.7	7.1	4.2	4.6	6.3
Division II C.....	14.3	14.2	14.9	14.3	15.9
Division III A.....	11.7	9.9	13.5	11.4	7.8
Division III B.....	24.3	26.4	23.5	25.1	28.8

In this table the uniformity of the numbers from decade to decade is far more striking than their differences. Such uniformity, however, must not be made the basis of conclusions wider than it will support. In the present case it must be said that not all of this apparent uniformity is real. The College of Letters and Science teaches English, foreign languages, mathematics, and pure science for all the students of the University. The amount of teaching thus done in 1886 was small, since nine-tenths of the students considered in the table were in the College of Letters and Science, and the amount of teaching in the other colleges would hardly exceed five per cent of the total teaching of the University. In 1913 the teaching for other colleges was probably from 15 per cent to 20 per cent of the work of the college, and the teaching in those colleges was about 27 per cent of the total in the University. Thus, if the basis for computation were the number of credits gained by the students of the College of Letters and Science alone, the figures for 1886 would be little modified. If the students from other colleges were excluded, all of the percentages of 1913 would be reduced except history, etc., and this would be much increased since very few students from engineering or agriculture are in these classes. If the base were widened so as to include the entire teaching of the University, the numbers in 1886 would show only a slight change, while those for 1913 would be smaller by nearly 30 per cent than the table gives them, since in that year the College of

Letters and Science gave a little less than three-fourths of the credits given by the colleges named.

It is a point of some interest that the quantity of teaching done by the college in 1893 was probably more than twice as great as that of a decade earlier. In 1903 the credits had again about doubled and in 1913 about 90 per cent had been added to the number given in 1903. Thus, the last decade showed an increase decidedly smaller than the preceding. It is by no means probable that the next decade will show an equal increase, even if the organization of the college remains the same.

I submit with my report the reports of the directors of the several courses associated with the College of Letters and Science. No matters contained in them seem to call for extended comment. They present the condition and the needs of these important branches of the college.

Four of the courses—Chemistry, Pharmacy, Training of Teachers, and Journalism—have received new quarters or enlargement of old ones during the biennium. The courses in Commerce and Music are both in very inadequate quarters, and it is hard to say which is worse off. The construction of the Physics Building is expected to provide suitable quarters for Commerce, and the case of quarters for Music must be left to the future. Its present building has been occupied for this purpose for about fourteen years. It was the former library and is unsuited for the purposes of music, both by its plan and its original construction. A wholly new building is needed, adapted for the special purposes of music, and the present music building should be turned over to other departments.

THE NEEDS OF THE COLLEGE

In the last biennial report I presented the prime need of the college—that for additional space. The reasons may be briefly summed up as follows: Additional space is needed: 1. To provide recitation rooms and laboratories for the increasing number of students. 2. To provide numerous additional offices for the faculty. 3. To provide space for improved methods of teaching, especially in history, political economy, political science, and English. 4. To allow the assignment of connected space to departments so that the departments of the humanities

may have a home in the same sense that science departments find a home in the laboratories.

I do not propose to argue this question again in full. The time has passed when any one believes that a teacher of language, history, or mathematics needs only a recitation room and a peg on which to hang his hat. Much of the success of the sciences as a means of education has come from the space which they have demanded and received. The possession of a home for the department has developed a corresponding spirit in the faculty and in the students. The advance students and the teachers of the sciences spend the working day in the laboratory in close association with each other. Thus there arises a common intellectual interest and a common feeling toward the subject, which can come only out of personal association and daily work and which can not be equally developed in the more formal atmosphere of the class room. The elementary student who enters the laboratory comes into the influence of the common work and common interest and this has greatly aided in making effective the teaching of the sciences. It is the hope of the University that in time space may be available so that there may be the same opportunity for the students of the humanities as for those in the sciences.

If these needs are met, each department will have a connected space which will be its home, in which teachers and any advanced students will spend the working day, and which the whole University will associate with the department. Mathematics or philosophy will have a home; not merely an equity in certain benches; and in this respect they will be on the same footing as the departments of bacteriology and soils.

These purposes have been before the college for many years and with them has developed another purpose which has been growing more distinct and for a good while has been equally definite. This is the matter of the need of space in which elementary students in subjects which demand somewhat wide reading may do their work under guidance. The proper use and interpretation of books ought to be taught in much the same way as the proper use of apparatus and the interpretation of the results of experiments. This teaching can not be done in the Library, invaluable as is the Library for the departments of the humanities. The elementary students are too nu-

merous and too little trained to make it possible that the Library should be open to them without restriction, and there is no space in the building where proper guidance can be supplied.

It need not be pointed out that this aim of the college to provide the best possible education is inconsistent with the most economical use of space. If the departments are to be provided with a home, there will be a use of space less than that which maximum efficiency would demand. The same statement is true for the home of a family; and no home can be made what a home should be if it furnishes to each member of the family only the minimum space which hygienic considerations demand. If the home atmosphere is to be created, it must be paid for in space as well as in other ways, but no wise head of a family will grudge this space. The experience of the University has been that the State has been equally wise in providing for the needs of the University.

It is undoubtedly true that some saving of space might be made by scattering the recitations of a department, the English Department for instance, and sending the instructors over the campus to various buildings wherever vacant rooms may be found. If the same policy were followed for a considerable number of departments a good deal of space might be saved, but this saving would be made at the expense of the departments; and English treated in this way would be permanently weakened in spirit and would become inferior to chemistry, bacteriology, or any other laboratory department. This conclusion is not merely a matter of opinion, it has forced itself upon us by the observation of the results of teaching in the different lines of work done by the college. It has been hoped the various provisions of space made for the humanities in the past year would permit the department in some measure to carry out the policies. The building of the University Library, the various enlargements of University Hall, the gradual giving up by the sciences of North and South Halls, were all intended as steps in this direction, but the increase of students, the increase of administrative offices necessarily associated with this, the starting of new enterprises, like University Extension, have defeated this purpose and have left these departments in a situation little or no better than before, so far as undergraduate work is concerned.

The need for additional space was presented to the legislature of 1913 with the result that there was authorized an addition to University Hall and also a second building which was devoted by the Regents, primarily to the Department of Physics and which will also house Political Economy and Commerce. The effect of these additions upon the college will be as follows: The Department of Physics will have adequate space instead of its present over-crowded quarters; Political Economy and Commerce will find in the same building a home in which their work can be properly done; the removal of Commerce from South Hall a similar opportunity for the department of German. The addition to University Hall with the space in South Hall set free by the removal of Political Economy will permit a similar though less complete readjustment of space and improvement in conditions for the departments in University Hall.

These additions will provide the students of the humanities with space which is less than is needed by students of science and less than is given to them but which will meet the more pressing needs of the college and will give opportunity for much improvement in teaching.

There are many other matters which the college needs. In former reports I have mentioned a museum, a larger sum for books, an adequate fund for publishing and research. There is always danger that such matters as these will be neglected in the pressure of need for providing adequate elementary instruction. Much might be said in regard to them and to other similar matters, but the need for space is at present so great and is so definitely the foundation for meeting successfully the intellectual tasks of the college that I prefer not to press these or other topics until this first necessity has been met.

Respectfully submitted,

E. A. BIRGE,

Dean, College of Letters and Science.

REPORT OF THE DIRECTOR OF THE COURSE IN COMMERCE

Dean E. A. Birge,
College of Letters and Science.

Dear Sir: I submit, herewith, my report as Director of the Course in Commerce for the biennial period, 1912-1914.

The number of students registered in the course in the year 1912-13 was 335 and in that of 1913-14, 396. The following table indicates the total registration for each year since the course was established together with the distribution of those totals among the various classes:

Year	Senior	Junior	Sophomore	Freshman	Special	Degrees Conferred	Total
1900-01	0	2	17	62	1		85
1901-02	3	9	35	50	5	2	102
1902-03	8	25	42	63	9	8	147
1903-04	22	25	47	71	8	19	173
1904-05	20	30	57	99	13	14	219
1905-06	22	33	73	83	9	25	225
1906-07	30	35	61	60	5	24	200
1907-08	28	44	50	56	5	25	222
1908-09	27	38	50	91	10	27	216
1909-10	33	36	69	95	4	31	237
1910-11	24	57	79	136	15	23	311
1911-12	43	56	108	119	1	43	327
1912-13	44	81	76	127	7	31	335
1913-14	66	59	82	183	6	49	396

The number of students from other states and foreign countries during each of the years, 1912-13 and 1913-14 was 30 per cent of the total. The average percentage for the preceding twelve years being 21 $\frac{3}{4}$, varying from a minimum of 16 in 1901-02 to a maximum of 28 in 1911-12. The number of states represented in 1912-13 was 24 and in 1913-14, 22.

No changes of great importance either in the staff of instruction or in the curriculum have been made during the period under review. Minor changes, however, have occurred. On account of the graduation of some of its members, it has been necessary each year to make changes in the staff of student assistants in accounting, and for the same reason last year the assistant in commercial law was changed. There are disadvantages in such changes and we desire, so far as possible, to avoid them in the future by adding a permanent member to our accounting staff who will do a part of the work now assigned to these students. Our ability to make such an addition, however, will depend upon the size of our budget and upon the discovery of a suitable man for the place. In the recommendations of student assistants made for next year we have had this matter in mind and we hope that one of the persons recommended may prove to be the right man for the place.

Changes have also taken place in the personnel of the staff in the foreign language departments. These also should be avoided whenever possible. The work of adapting foreign language courses to the needs of business men is difficult and its successful accomplishment demands continuity of effort and careful, continuous study of the problem. The assignment of new and inexperienced men to this task interferes with such continuity and such study. I am glad to be able to say that the departments in question are cordially co-operating with me in the endeavor to reduce this difficulty to a minimum.

The course in English history for commerce students during this biennium has been put in the charge of Mr. Byrne, thus reducing the size of the large class which Professor Dennis formerly conducted and making it possible to give attention to the special needs of the commerce group.

The curriculum changes have consisted in the modification of the contents of courses rather than in the introduction of new ones. Certain of our courses, notably those in accounting and business administration, have been considerably modified, partly by the introduction of new matter, partly by the rearrangement of material and partly by omissions to avoid du-

plication of portions of courses given under other heads or to permit the substitution of more for less important things.

Certain further modifications of the curriculum are desirable and should receive attention in the immediate future. The elementary course in political economy which commerce students now take is the first semester of a year's course planned primarily for students who have not previously pursued any studies in the field of political economy and who may not have opportunity to pursue the subject further. Precedent to taking this course, however, commerce students have had a semester's course in commercial geography. Accompanying it they take a second semester course in commercial geography and after it they take special courses in money and banking, transportation, accounting, etc. Obviously their needs are peculiar and a special elementary course adapted to them should be provided.

Much the same may be said of the course in corporation finance. Commerce students approach this subject from various angles, especially those in accounting, commercial law, and money and banking, and their needs are very different from those who have never studied allied topics.

There is also need for a considerable expansion of our courses in business administration. This is an important branch of business education in which great progress had been made during the last five years. Our work in this field is now confined to a single course for one year conducted during the first semester by Professor Gilman and during the second by Professor Butler. We should have at least five semester courses; one introductory and historical and general in character; one on marketing methods; one on industrial management; one on credits and collections; and one on practical advertising.

Our finance courses should also be supplemented by a course on Investments in which the principles, machinery, and methods by which capital is transferred from those who accumulate it to the industries in which it finally performs its work as a factor of production is discussed, both from the standpoint of economic science and from that of business enterprise.

The passage of the certified public accountant law by our last legislature makes it incumbent upon us to prepare

students for that examination. To this end the addition to our curriculum of more highly specialized courses in accounting is desirable. At least one, and possibly two other courses in accounting should also be added to our curriculum to meet the needs of engineers and of graduates and other advanced students in economics.

The present course in business administration (Political Economy 8d) and such other courses in this field as may be added in the future, together with such additional courses in accounting as may be provided, commerce students should be permitted to take without adding to the total number of credits required for graduation. This can be accomplished, either by allowing these courses to be accredited towards graduation by all students in the College of Letters and Science, or by permitting commerce students to count those subjects towards a major which they shall be allowed to take in those lines.

The provision of the above mentioned courses, which seems to me to be essential to the progress and continued success of the Course in Commerce as at present constituted will require the addition of another full-time man to our force in accounting, and the acquisition of the entire time of Professor Butler, who is now giving us only one-sixth of his time. Professor Butler is admirably fitted by training, experience, and inclination to do the work we require in business administration and also to conduct much needed investigation in that field. If we should secure his entire time, the work he is now doing in the Extension Division would, of course, have to be assigned to some one else. When an additional full-time man is provided in accounting, the services of at least two student assistants can be dispensed with, for a time at least.

The time seems to me to have arrived for a considerable enlargement of the scope of the work now being done at the University in the interests of the commerce and industry of the state and of the nation. So far our work has been confined to the development of a single four-year course in commerce leading to the degree of B. A. and restricted by the limitations imposed upon all who are candidates for that degree. The establishment and development of such a course was undoubtedly the first task to be performed in this field. Most

of the work involved in completing it, however, has been done during the last fourteen years. Along this line there remains only the maintenance of this course and its modifications from time to time as conditions change. New tasks equally imperative have appeared, however, the undertaking of which the University ought seriously to consider.

To one of these I have called attention in my two last biennial reports, namely that of making adequate provision for the needs of the large majority of our students who remain here one or two years only and who are now forced to take the first year or the first two years of our four-year course or a slight modification of the prescribed work of those years. Within this group is a number, constantly increasing in proportion to the total, who wish to specialize in certain subjects, such as accounting and finance, or to prepare for special kinds of work such as secretaryships of commercial organizations.

The expansion of the courses in accounting, business administration and finance above recommended would help us in meeting the needs of those students, but in addition other courses in money and banking and commercial law, adapted to the needs of first and second year students and one or two courses on the work and methods of commercial organizations should be provided. The regulations now in force in the College of Letters and Science regarding the courses open to freshmen and sophomores should also be modified so as to permit these students to elect the courses thus provided for them.

Systematic investigation in the field of commerce also demands our attention. The facts regarding the methods and costs of the distribution of all classes of goods, manufactured articles as well as raw materials and food products, should be revealed and considered both from the standpoint of the people engaged in the various lines of business involved and of the public. A systematic investigation of our credit system in all its aspects is equally imperative. Unaided individuals can accomplish little in this field. The co-operation of trained specialists, business men, and in some cases of the state is necessary. Should not the scope, equipment, staff and means of the Course in Commerce be so enlarged that it may undertake a part of this work?

During the past two years our regular staff has been assisted

by the following special lecturers: A. P. Richardson, Secretary of the American Association of Public Accountants; A. F. Potts, of the Citizen Gas Company of Indianapolis; G. B. Caldwell, Vice President of the Continental and Commercial Trust Company of Chicago; Hollis Godfrey, Engineer and Scientific Management Expert; and J. B. Tanner, Accounting Director of the Board of Public Affairs and President of the State Board of Accountancy.

Respectfully submitted,

WM. A. SCOTT,

Director, Course in Commerce.

REPORT OF THE DIRECTOR OF THE COURSE IN CHEMISTRY

Dean E. A. Birge,
College of Letters and Science.

Dear Sir: I beg to submit herewith my report as Director of the Course in Chemistry for the biennial period 1912-14.

The details of the enrollment in the Course in Chemistry for the last two years are given in the following table:

1912-1913

	Men	Women	Total
Seniors.....	19	1	.....
Juniors.....	18	1	.....
Sophomores.....	17	1	.....
Freshmen.....	16	1	.....
Adult Specials.....	3	.....	.....
Total.....	73	4	77

1913-1914

	Men	Women	Total
Seniors.....	14	1	.....
Juniors.....	18	2	.....
Sophomores.....	17	1	.....
Freshmen.....	16	.....	.....
Adult specials.....	4	.....	.....
Total.....	69	4	73

It will be noted that the attendance during the two years has been practically constant, and that all of the students except four were men. The male graduates of the course have had no difficulty in securing positions. With but few exceptions, they took up work in the arts and industries, or in private or gov-

ernmental analytical laboratories. It has not been easy to secure positions for the women. There are as yet practically no openings for them in industrial lines, and, as a rule, they can not secure positions in large analytical laboratories, where men are generally employed. The women have consequently secured positions as teachers; but even in these lines they have not always been able to find employment, for with the exception of the larger high schools and a few schools that teach home economics and agriculture, chemistry is not yet taught in our secondary schools. The men have generally chosen to go into industrial work rather than into teaching, because the former offers greater remuneration and opportunity for advancement. As a rule, the positions which they at first secure yield no larger salaries than teaching positions, but the opportunity for final advancement is more alluring.

During the last two years a stronger tendency to major in agricultural chemistry has been manifesting itself, doubtless because of the demand for good chemists in this line. The courses in food chemistry and in chemical technology have also secured a larger proportion of the students. As the Course in Chemistry is arranged, no student can specialize in the lines mentioned, or in any other lines, without first having a sound foundation in all of the fundamental branches of chemistry and related sciences. That the applied courses are being elected as majors was to have been expected. Nor is it regrettable that students naturally take to these courses after they have had the proper basal work. Thus far all of our graduates have been successful in the work which they have undertaken, and so the reputation which these graduates have established has greatly aided those that have just completed the course in securing desirable positions.

The fact that 140 credits are required for graduation makes it practically impossible for any but the best students to complete the course in four years. It is not infrequently necessary to do summer session work in order to secure the requisite number of credits. The enrollment shows that there is a tendency for adult special students to enter the Course in Chemistry. These mature students frequently find the foreign language requirements quite difficult. It would seem that in cases of this kind the language requirement could be altered to the advantage of the student by asking him to offer either French or German, preferably the latter, but not both. In my previous report I

have called attention to the fact that these foreign languages are no longer so essential to the chemist as they once were, because the chemical literature is now being rapidly translated into English, and a very large fund of chemical knowledge is available in that language. If a reduction in the language requirement is made in the near future, it ought perhaps to be limited to the cases of mature students who have not in their early training devoted time to language study and who have passed the age at which languages are readily acquired. The number of such cases is at present quite small, so that there really is no occasion for immediate action.

The completion of the new wing of the Chemistry building has added greatly to the working space and general facilities. Students in the elementary courses now have the necessary room, and those who are studying in the advanced courses also have proper space. There has consequently been an increased interest manifested in chemical work, especially in the advanced lines of physical, inorganic, organic, and food chemistry. At the present time the chemistry work in the Forest Products Laboratory is being re-arranged, and, with the coming of Dr. Acree, special courses in the chemistry of the celluloses and other carbohydrates will be offered.

It ought to be mentioned here that the students in the Course in Chemistry are all under-graduates, and that they by no means represent all the students who are making a special study of the subject of chemistry. So, for instance, a given number of students who are candidates for the B. A. degree elect chemistry as their major or minor subjects. Again, an increasing number of graduate students, who are candidates for the Master's degree or the doctorate, are specializing in chemistry. The presence of these graduate students has greatly aided in maintaining enthusiasm and a proper atmosphere for the pursuit of chemistry. The fact that chemistry is a basal subject for all the other natural sciences and their practical applications, has brought an ever increasing number of students into the Department of Chemistry, especially in the courses of the first and second years. While this has added to the pedagogical work of the department, it has also served to increase the interest in the study of chemistry in the higher courses. It is to be hoped that the work of chemical investigation will be increased, and that the members of our instructional force will be led to feel that there is time

and opportunity for such work, and that it is considered of special value, for in this way only can the elementary teaching really be kept alive and the advanced courses maintained abreast with the times. Thus, too, will the best of our students be induced to pursue the study of chemistry and its applications which are constantly increasing in importance.

Respectfully submitted,

LOUIS KAHLBERG,
Director, Course in Chemistry.

REPORT OF THE DIRECTOR OF THE COURSE IN PHARMACY

Dean E. A. Birge,
College of Letters and Science.

Dear Sir: The biennium to be covered briefly in this report has been a noteworthy one so far as the Course in Pharmacy is concerned.

In 1881 the druggists of the state were organized into the Wisconsin Pharmaceutical Association. The first endeavors of this organization were directed toward the enactment of a pharmacy law controlling the practice of pharmacy for the benefit of the public. The second important step taken was to secure, through legislative enactment, the establishment of a Department of Pharmacy at the University in order that the pharmacist of the future might be educated up to the standards desired by the founders. Unfortunately, the hopes entertained by the men of 1881 were not realized and for a time disappointment seemed to give way to despondency. The druggist of Wisconsin had to learn that improvement could not be brought about by legislative enactment alone but depended largely on the much slower process of education.

It is in this necessarily slow process that the pharmaceutical graduate of the University has played an important role. His university ideal of education has given him some of that broader outlook which is so essential to cope with the present complex and perplexing situation. Hence it was with his initiative, that the third important piece of constructive pharmaceutical legislation was undertaken in 1912 by the Wisconsin Pharmaceutical Association. Upon the recommendation of the association, the last Legislature established the first Pharmaceutical Experiment Station. This station is to do for pharmaceutical practice in the state what the Department of Pharmacy has done for pharmaceutical theory.

Although the appropriation of \$5,000.00 asked for by the State Pharmaceutical Association was cut in two by the finance committee, thanks to its close affiliation with the University, the station has been in a position to do considerable work, some of which was directly helpful to the pharmaceutical practitioner. A report of the activities during the first twelve-month may be published before the close of this calendar year.

The introduction of the bill establishing the station, known as 247 S, attracted considerable attention. The actual establishment of the station has given rise to favorable editorial comments in the pharmaceutical press. As Michigan and Wisconsin set the example of pharmaceutical education by the state, so the hope is now expressed that, in the course of time, every state will have its pharmaceutical experiment station.

As one of the most important features of station activity, the co-operative experiment in the cultivation of medicinal plants between the Bureau of Plant Industry of the Department of Agriculture and the University has received a new impetus. Heretofore all aspects but that of mere cultivation of the medicinal herb garden had to be sadly neglected. With the improvement of Regent Street by the City, the Tenth Ward association had requested the City, the Park and Pleasure Drive Association, the Illinois Central Railway and the University to improve their respective properties at the intersection of Regent Street and Breese Terrace in accordance with the general plan for improvement suggested by Landscape Architect Simonds at the instigation of the Park and Pleasure Drive Association. The Tenth Ward Association has further suggested that these properties be treated as a unit and be named The Hollister Gardens and that the income from the Hollister Fund to the Park and Pleasure Drive Association be utilized in improving and maintaining these gardens.

Some time during the year 1913 there was paid to the Board of Regents the sum of \$5,000.00 by the Hollister Estate. The income for this fund became available with the present fiscal year and thus enabled the faculty to recommend the first Hollister Scholar for the year 1914-15. This scholarship ought to be supplemented at an early date by a University fellowship in pharmacy and pharmacognosy. It is in both of these departments that we have the greatest difficulty in securing

adequate assistants and instructors. Now that practically all of the science departments of the College of Letters and Science have been provided with departmental fellows, the time ought to be opportune to provide at least a joint fellowship for pharmacy and pharmacognosy.

The State Historical Society has also received a sum of money, viz: \$12,000.00, from the Hollister Estate for the establishment of a pharmaceutical library. If the income from this fund is spent in accordance with the wishes of the donors, historical research in pharmacy ought to supplement scientific research in pharmacy at the University in the future. The opportunity is as splendid as it is unusual, and it is to be hoped that the most will be made thereof.

Through the Department of Pharmacy, the University has continued to co-operate with the State Board of Pharmacy. The board holds its four examinations of the year in the departmental laboratories. This form of co-operation cannot result otherwise than in the elevation of pharmacy and hence must accrue to the benefit of the state at large.

Respectfully yours,

EDWARD KREMERS,

Director, Course in Pharmacy.

REPORT OF THE DIRECTOR OF THE COURSE FOR THE TRAINING OF TEACHERS

Dean E. A. Birge,
College of Letters and Science.

Dear Sir:—The fourth biennial report of the Course for the Training of Teachers, covering the period June 30, 1912 to June 30, 1914, is herewith presented in accordance with your request.

The several sections of the report are presented under the following headings.

I. STATISTICAL EXHIBITS

1. *Registration*
2. *University Teachers Certificates*
3. *Major Preparation for Teachers Certificates*
4. *Enrollment: Departmental Teachers Courses*
5. *Registration: Advanced Course for the Training of Teachers*
6. *Certificates Granted: Advanced Courses for the Training of Teachers*

II. PRINCIPAL DEVELOPMENTS DURING THE BIENNIUM

1. *Wisconsin High School*
2. *Requirements for the University Teachers Certificates*
3. *Training of Teachers in Industrial Subjects*

III. MISCELLANEOUS COMMENTS

1. *Departmental Teachers Courses*
2. *Department of Education*
3. *Teaching Fellowships*
4. *Co-operation with the Madison Public Schools*
5. *Advanced Course for the Training of Teachers*

IV. PROBLEMS: ANTICIPATIONS.

V. SPECIFIC RECOMMENDATIONS.

It is obvious that the limitations of space imposed upon this biennial report permit merely the briefest treatment of each of the items indicated.

I. STATISTICAL EXHIBITS

In the following Tables (I—VI) there is recorded the essential information concerning the number of students whose work has been done within the Course for the Training of Teachers.

It is clear from the comparative data presented that with regard to both the number of teachers trained, and the specific character of their preparation, the situation has remained substantially the same as during the preceding biennium.

TABLE I
Registration in the Course for the Training of Teachers, 1908-14

	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14
SENIORS.....	153	169	248	241	254	251
Men.....	37	26	37	50	60	59
Women.....	116	143	211	191	194	192
JUNIORS.....	*	214	257	223	217	224
Men.....		29	43	43	30	61
Women.....		185	214	180	187	163

*Juniors were not required to register in 1908-1909.

TABLE II
University Teachers Certificates Granted, 1908-14

	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14
Men.....	37	28*	28*	41*	39	45
Per cent.....	24.2	16.3	12.5	19.0	19.4	21.4
Women.....	116	144	195*	174†	162	165
Total.....	153	172	283	215	201	210

*Certificates granted after report was issued.

†Three certificates withheld on account of medical examination.

SPECIAL NOTE:—Owing to certain peculiar features of the organization of the Course for the Training of Teachers, the number of University Teachers Certificates granted does not represent the total number of teachers receiving training within the University. Graduates of state normal schools, already in possession of a legal license to teach, frequently do not fulfill the requirements for the University certificate. There are, I estimate, together with other graduates of the University who qualify, through the State Board of Examiners, for teaching in the public schools of the state, from thirty to forty such cases each year.

The totals shown above for the years 1909-1910, 1910-1911, and 1911-1912 vary slightly from the totals presented in the biennial report for 1910-1912. These variations are due to graduates fulfilling the requirements for the certificate subsequent to graduation.

TABLE III

Major Preparation of Students Receiving University Teachers Certificates,
1910—1914*

		1910-11	1911-12	1912-13	1913-14	Total
Agriculture	{ M W	1	10	9	16	36
Bacteriology	{ M W	..... .....	..... .....	..... .....	1	1
Botany	{ M W	..... 4	1 8	..... 4	..... 4	1 20
Chemistry	{ M W	2 .....	..... 3	..... 2	2	4 5
Commerce	{ M W	1 .....	..... 1	..... .....	..... .....	1 1
Education	{ M W	1	7 3	4 4	..... 1	12 8
English	{ M W	2 54	..... 59	2 51	2 54	6 218
Geology	{ M W	..... .....	..... .....	1 5	2 2	3 7
German	{ M W	2 46	1 25	2 23	2 17	7 111
Greek	{ M W	1 .....	..... .....	1 .....	..... .....	2
History	{ M W	14 35	10 37	8 24	8 26	40 122
Home Economics	{ M W	12	3	14	22	51
Latin	{ M W	..... 22	..... 18	..... 18	1 12	1 70
Mathematics	{ M W	..... 8	1 10	1 7	2 4	4 29
Manual Arts	{ M W	..... .....	..... .....	1 1	1 1	2 2
Music	{ M W	..... .....	..... .....	1	8	9
Philosophy	{ M W	..... 1	..... .....	1 .....	..... .....	1 1
Physical Education	{ M W	..... .....	..... .....	1	2	3
Physics	{ M W	2	1	6	1 1	10 1
Physiology	{ M W	..... .....	..... .....	1	1	2
Political Economy	{ M W	2 1	1	2	7	12 1
Political Science	{ M W	1	1 .....	..... .....	2	2 2
Public Speaking	{ M W	..... .....	1 .....	..... .....	..... .....	1
Romance Languages	{ M W	..... 4	..... 6	..... 6	..... 5	..... 21
Zoology	{ M W	..... 5	..... 3	..... 1	..... 3	..... 12

* See special note, Table II.

TABLE IV
Registration in the Several Departmental Teachers Courses 1910 1914

	1910-1911						1911-1912						1912-1913						1913-1914					
	First Semester			Second Semester			First Semester			Second Semester			First Semester			Second Semester			First Semester			Second Semester		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	M.	W.	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agriculture.....				14	1	15				33	1	34	8		8	25		25	9		9	32		32
Botany.....				0	17	17				6	11	17				1	6	7				16		16
Chemistry.....				5	8	13				6	6	12										5		5
English.....	6	112	118	6	89	95				6	79	85	8	88	96	8	85	93	1	84	85	2	73	75
Geology.....	3	18	21							15	16	31										4	84	88
German.....	3	57	60							4	49	53										4	28	32
Histroy.....	7	27	34	11	23	34				9	21	30	8	26	34	4	17	21				3	24	27
Home Economics.....				0	11	11				0	11	11												
Latin.....				0	80	80				2	12	14	5	2	7	7	2	9				10		10
Mathematics.....	6	0	6	7	0	7				0	9	9										11		11
Physical Education.....	0	12	12	2	9	11				4	12	16										1		1
Political Economy.....				5	0	5				5	1	6										4		4
Romance Languages.....																								
Zoology.....	0	7	7	0	8	8				4	10	14	1	7	8	7	7	7	1	8	9	1	8	9

TABLE V

Registration in the Advanced Course for the Training of Teachers

Items.	Summer session, 1908	Regular session, 1908-09	Summer session, 1909	Regular session 1909-10	Summer session 1910	Regular session, 1910-11	Summer session, 1911	Regular session, 1911-12	Summer session, 1912	Regular session, 1912-13	Summer session, 1913	Regular session, 1913-14	Summer session, 1914
Registrations—New													
Men.....	5	1	17	1	16	1	12	2	11	2	6	2	3
Women.....	4	1	11	...	5	...	5	...	16	3	1	...	2
Registrations—Continued.....													
Men.....	...	...	2	...	12	...	15	1	19	...	11	1	8
Women.....	...	...	1	1	7	3	3	...	4	...	6	...	4
Totals.....	9	2	31	2	40	4	35	3	41	5	24	3	18
Major Subjects:													
Agriculture.....	...	...	...	...	1	...	...	...	1	...	...	...	...
Botany.....	...	...	...	...	...	...	...	...	1	...	1	...	...
Chemistry.....	1	...	...	...	...	...	...	...	4	1	...	...	...
Education.....	3	...	6	1	8	...	...	...	1	...	5	1	3
English.....	1	2	3	...	1	1	6	1	5	1	...	...	2
German.....	...	...	3	...	...	...	1	...	1	...	...	...	...
History.....	3	...	5	...	3	...	...	...	1	...	...	...	...
Home Economics.....	...	...	...	...	...	...	4	1	1	...	...	...	...
Latin.....	1	...	3	...	2	...	...	...	5	1	...	...	...
Manual Arts.....	...	...	...	...	...	...	...	...	...	...	...	...	...
Mathematics.....	...	...	...	...	2	...	2	...	4	...	...	...	1
Music.....	...	...	...	...	1	...	3	...	...	...	...	...	...
Physics.....	...	...	...	...	...	1	...	...	1	1	...	...	...
Political Economy.....	...	...	3	...	2	...	...	...	1	...	...	1	...
Political Science.....	...	...	...	...	...	...	...	...	1	...	1	...	...

TABLE VI

Certificates Granted in the Advanced Course for the Training of Teachers

Certificates Granted	Men	Women
June 22, 1910.....	3	...
April 6, 1911.....	4	1
October 11, 1911.....	5	1
April 25, 1912.....	3	...
November 13, 1912.....	4	1
October 8, 1913.....	3	3
	22	6
Major Subjects:		
Chemistry.....	1	...
Education.....	14	...
English.....	...	3
German.....	...	1
History.....	3	...
Latin.....	...	1
Mathematics.....	1	...
Physics.....	...	1
Political Economy.....	3	...

II. PRINCIPAL DEVELOPMENTS DURING THE BIENNIUM

1. *Wisconsin High School*

That portion of the new building for the Wisconsin High School (approximately two-thirds of the structure as designed), under construction since the spring of 1913, has been completed and was occupied in September, 1914. The delay in providing appropriate facilities for the effective conduct of this school, while due to unavoidable circumstances, naturally resulted in a postponement of the development of the school as a laboratory centre for the training of teachers. Relatively little could be accomplished in the cramped and ill-adapted rented quarters which the school occupied since 1911. Nevertheless, under the efficient direction of Professor H. L. Miller, the school has been completely reorganized with a view of enabling it to accomplish the purposes contemplated by its establishment.

Professor Miller has filed with me a comprehensive statement concerning the work of the school during the biennium. This statement is too lengthy for inclusion in this report. In this connection I would refer you to two recent bulletins of the University*, in which the distinctive features of the organization and operation of the school and of its relationships to the University are completely set forth.

The enrollment of pupils in the several classes of the school during the biennium is shown in the following table.†

*Announcement of *The Wisconsin High School of The University of Wisconsin*, 1913-14. Bulletin of The University of Wisconsin, Serial Number 574; General Series Number 398.

Special Announcement of the Course for the Training of Teachers and the Department of Education, 1914-15, Bulletin of The University of Wisconsin, Serial Number 671; General Series Number 482.

†At the present time (October 1, 1914) the school has enrolled 230 pupils.

TABLE VII
Enrollment of Pupils in the Wisconsin High School, 1912-1914

	1912-1913			1913-1914		
	Boys	Girls	Total	Boys	Girls	Total
First Class (Senior).....	21	9	30	23	5	28
Second Class.....	12	4	16	13	7	20
Third Class.....	8	8	16	22	11	33
Fourth Class.....	16	10	26	15	9	24
Fifth Class.....	11	6	17	10	8	18
Sixth Class (Lowest).....	11	8	19	11	2	13
	79	45	124	94	42	136
Specials or Unclassified.....			16			16
Total.....			140			152

2. Requirements for the University Teachers Certificate

After a prolonged consideration of the question, the requirements for the University Teachers Certificate, as these have existed for a number of years, were modified by the faculty in January, 1914. These modified requirements become effective with students graduating after January 1, 1916. They include an increased amount of study in the Department of Education, together with practical work in teaching. Candidates for the University Teachers Certificate must also secure *eight* credits in addition to the one hundred and twenty credits required for the Bachelor of Arts degree; and for such certificate must devote at least one summer session in addition to the regular residence requirements.* These new requirements further give to the administrative committee on the training of teachers an extended power of supervision over all of the so-called professional courses which are taken in fulfillment of the requirements for the teachers certificate.

As is usual in such cases this step represents a compromise between those members of the faculty who believe in specialized preparation for teaching, and those who assume the position that the existing liberal arts course contains an effective preparation for the teacher in the high school. Nevertheless, the new requirements embody a distinct recognition of the claim for an

*These modified requirements apply only to students graduating from the College of Letters and Science.

increased amount of professional study by those students upon whom the University places its stamp of approval of fitness for teaching.

While the influence of these new requirements may not be foreseen with certainty, it is evident that there is an immediate need of a proper classification of the legal certificates awarded by the state to those entering the teaching staff of secondary schools. A clear distinction should be made between the recognition accorded those who have intensively equipped themselves for teaching from those who enter teaching with but a minimum of special preparation.

3. *Training of Teachers in Industrial Subjects*

The establishment of the Department of Manual Arts in 1910, was the first definite step taken by the University to meet the increasing demand of the secondary schools for competent teachers of manual arts and of industrial subjects. The growth and development of this department under the leadership of Professor F. D. Crawshaw has amply justified this venture in the training of teachers.

The Industrial Teaching Scholarship established in 1912-1913 for the purpose of attracting some of the younger, skilled craftsmen from industry into the ranks of teaching, proved so successful that the Regents provided for two of these scholarships for 1913-1914. The University budget for 1913-1914 also provided for six special industrial scholarships. It was the original plan with regard to these special scholarships to appoint six selected individuals who would spend a summer session in special study for preparation for service in the rapidly expanding industrial continuation school system of the state. Owing to the late approval of the budget for 1913-1914 it was not possible to carry out this plan during the Summer Session of 1913. Therefore, a plan for the organization of a so-called Mechanics Institute was devised; and there was conducted from March 9, 1914 to April 9, 1914, under the direction of Professor Crawshaw, a short course for mechanics, in which it was aimed to provide an intensive period of preparation for industrial teaching. Fifteen skilled mechanics were selected and appointed. To each appointee was paid an hon-

orarium of Forty Dollars (\$40), which sum was sufficient to meet his local expenses. The instruction was carried on by the University instructors in addition to their regular duties.

As indicative of the success of this mechanics institute it may here be noted that ten of the fifteen mechanics who were members of the institute have since been appointed to teaching positions, either in the regular public schools, or in the industrial continuation schools of the state.

III. MISCELLANEOUS COMMENTS

1. *Departmental Teachers Courses* *

Each of the instructors in charge of a departmental teachers course has submitted to me a report upon the work of his course. To an increasing extent each of these courses is becoming what may be called a *key* course for preparation for teaching the subject in question. With the facilities of the Wisconsin High School for practical work now available, those in charge of these departmental teachers courses will hereafter be put to a real test of demonstrating the practical professional worth of their courses for the intending teacher.

2. *Department of Education*

With the adoption of the new requirements for the University Teachers Certificate, and with the laboratory facilities contained in the Wisconsin High School, the Department of Education will now possess a much larger opportunity to influence the general professional preparation of students qualifying for teaching; and also to select more rigidly those who, on the basis of intellectual capacity and personal promise, are entitled to University approval of fitness for teaching.

The appointment of Mrs. Edith Hoyt as instructor in Education in the Extension Division will, it is hoped, enable a closer and more effective conduct of the courses of instruction in Education now given through correspondence. This appointment is a part of a larger plan, which is being developed by the department, in an endeavor to make more available to the

*See Table IV for data concerning enrollment in these courses.

teachers and supervisors in the public schools of the state the professional resources of the University.

3. *Teaching Fellowships*

The plan of teaching fellowships, instituted four years ago, has been continued. For 1914-1915 the number of those fellowships has been increased from six to eight. During the last year the placing of the holders of these fellowships in the co-operating high schools was accomplished only after considerable difficulty. This condition of affairs came about in spite of all reasonable efforts on the part of the authorities of the co-operating schools. The difficulty is more or less inherent in the plan. In the absence of any regular and effective oversight, from the University, of the probationary teaching of these fellows, and in view of the new circumstances surrounding the training of teachers created by the Wisconsin High School, it is my intention to consider carefully during the coming year whether or not it is desirable for the University to continue these teaching fellowships.

4. *Co-operation with the Madison Public Schools*

Preliminary steps have been taken to reorganize the scheme of co-operation with the Madison Public Schools that has been in operation during the past seven years. Such a reorganization has been in contemplation since the establishment of the Wisconsin High School. This school, providing, as it will, the core of the professional training for teaching, will still need to be supplemented by the largest obtainable opportunities in the Madison Public Schools in order to give to all of our students a minimum of chance to be brought into contact with the practical issues of teaching.

5. *Advanced Course for the Training of Teachers*

My best judgment concerning this course was contained in my last biennial report. That judgment I repeat here. "The conclusion of my careful observation of the operation of the advanced course during the past four years is that it scarcely warrants its continuance as an academic device for the encouragement of graduate professional study. A graduate standard for public school teaching and supervision does not appear possible without some legal sanction."

Furthermore, the new requirement for the University Teachers Certificate, of a summer session of study in addition to the regular residence requirement for the Bachelor's degree, places the advanced course in an anomalous position.

IV. PROBLEMS—ANTICIPATIONS

During the last few years three specific objects have been before me as Director of the Course for the Training of Teachers. May I speak of each of these briefly:

1. *The establishment of a physical centre about which the distinctive activities relating to the preparation of teachers could be organized and given a definite professional unity.*

To anyone, familiar with the situation as it exists in the greater number of our larger universities, the striking fact is the general absence of any craft feeling on the part of those students being prepared for the work of teaching. Moreover, there frequently seems to be a sort of institutional pride in avoiding the development, on the part of those looking forward to the service of teaching in the lower schools, of anything akin to that professional allegiance which is thought so desirable as an element of preparation for other professions. There are, of course, a number of contributing causes for this situation. As I have been able to analyze the situation in this university, I am convinced that a partial remedy is to be found in the establishment of a distinct physical centre which will represent concretely to students and to faculty the professional endeavor of the University in the interest of teaching. At the present moment teaching is the only one of the professions fostered by this University that cannot claim a home, however humble. The Wisconsin High School building in its completed form was planned to be such a professional centre. At present this building is sufficient for carrying on the work of the high school instruction only. The construction of the remaining wing of the building would enable a proper centralization of all of the professional instruction now given through the Department of Education and the special teachers courses of the several departments of the University. Until such centralization is brought about the school itself will not be able to

render its full service to the University; nor will there be developed in our student body that craft consciousness, the absence of which is a real obstacle to the professional training of teachers within the University.

2. *The constitution of a proper budget for the work for the training of teachers.*

The present budget of the Course for the Training of Teachers is a fiscal anomaly. It includes but a small portion of the amount devoted to the work of the training of teachers. It also includes items that have a remote relationship to that work. A properly constituted budget for the Course for the Training of Teachers is desirable in order that the University and the State may know how much money is actually being spent on the work of the training of teachers.

3. *The development of a closer constructive supervision of those University activities existing primarily for the professional training of teachers.*

A most important advance step was made last year when the requirements for the University Teachers Certificate were modified in that the Committee on the Training of Teachers was given the supervisory direction of the professional work which will, it is hoped, serve to bring about greater unity than has been possible under the former plan of departmental autonomy.

V. SPECIFIC RECOMMENDATIONS

As a matter of definite record, and for your further consideration, I present the following recommendations, the supporting arguments for which will be elaborated in connection with the next budget proposals for the Course for the Training of Teachers:

1. *That the Wisconsin High School building be completed at the earliest possible date.*

2. *That provision be made for the regular visitation and assistance, by the University, of all teachers in the high schools of the state, who are graduates of the University Course for the Training of Teachers, and who are in their first year of teaching service.*

3. *That adequate financial provision be made for the conduct of the Wisconsin High School during the summer quarter.*

4. *That the salaries of the teaching staff of the Wisconsin High School be arranged in accordance with such a definite schedule as will enable the securing and retaining of teachers of superior skill.*

5. *That provision be made for courses of instruction in the Department of Education, and in such other departments as may be necessary, for the advanced instruction of teachers of defective children, and of other special classes of pupils now being established in the public school system.*

Respectfully submitted,

EDWARD C. ELLIOTT,

Director, Course for the Training of Teachers.

REPORT OF THE CHAIRMAN OF THE COURSE IN JOURNALISM

*Dean E. A. Birge,
College of Letters and Science.*

Dear Sir: In response to your request, I beg leave to submit the following report on the growth and the needs of the Course in Journalism.

GROWTH OF THE COURSE

When the first course in journalism was organized by the present chairman in the fall of 1905 it was one of the first attempts in this country to give college students systematic training in preparation for newspaper writing and editing. In 1906-07 those studies in the College of Letters and Science that were most important in preparation for journalism were organized into a four-year "Course Preparatory for Journalism." These courses were reorganized in 1909 into the present "Course in Journalism." In 1912 the courses in journalism were organized as a separate department, affiliated with the English Department, but with a chairman and budget of its own. This year the Department of Journalism has been made independent of the Department of English, so that students may now take their undergraduate major in journalism.

Since the first classes in journalism were organized at The University of Wisconsin and a four-year training course in preparation for journalism was provided, other institutions have developed similar courses until now practically all of the larger state universities and many colleges offer instruction in this field. In the large state universities technical training in journalism has been developed to a greater degree than it has at Wisconsin, for well equipped printing plants have been es-

tablished at a number of these institutions, from which daily newspapers are issued by the students of journalism.

Despite the rise and the development of the teaching of journalism in these other colleges and universities, the number of students enrolled in the Course in Journalism at The University of Wisconsin has steadily increased. It now ranks as the third largest of the special training courses in the University, being exceeded in numbers only by the Course for the Training of Teachers and by the Course in Commerce. It is also among the largest schools of journalism in the colleges and the universities of the country.

The Course in Journalism has been materially strengthened during the last two years. The organization of the Department of Journalism as an independent department this year has been of decided advantage in the development of its instructional and administrative work. The lack of adequate quarters for the Department of Journalism which has seriously handicapped its work for several years has been remedied by assigning to the department this year that portion of the third floor of South Hall hitherto occupied by the Department of Bacteriology. When these new rooms are fully equipped, they will afford ample space for the varied needs of the department. The addition to the instructional staff of the department of an assistant and a student assistant also makes possible more effective instruction. The efficiency of teaching in the department has been greatly increased during the past few years as a result of the extension of a plan of having frequent conferences with every student in the journalism classes. At these individual conferences the instructor goes over with each student his work of the week in order to show him how to overcome his difficulties in writing.

Through co-operation with other departments of the University it has been possible to add several important studies to the Course in Journalism.

By arrangement with the Extension Division the services have been secured of Professor R. S. Butler of the Department of Business Administration as lecturer in journalism for a course in Newspaper Advertising. This course, which was given for the first time last year, is to be offered every year hereafter. By means of this course and that which has been given by the

Department of Philosophy for some years on the psychology of advertising, students of journalism are now able to study the fundamental principles of one of the most important phases of newspaper and magazine making.

The Department of English last year opened its course in commercial correspondence and the writing of advertising booklets to students in the Course in Journalism in order that they might have the advantages of this training which had hitherto been restricted to students in the Course in Commerce.

To familiarize students of journalism with newspapers of other countries and to aid them in keeping informed on present political, social, and economic conditions abroad, a course in the reading and the study of French newspapers was provided in co-operation with the Department of Romance Languages, and a similar course in German newspaper is being given for students of journalism by the German Department.

In the absence of a printing plant and of a daily newspaper under the control of the Department of Journalism, efforts have been made to give students as much practical training as possible in connection with the two Madison daily papers and the Daily Cardinal. Through co-operation with the editors of the Madison papers the department has been able to have students do reporting for these papers. The opportunities for this kind of work are necessarily limited and are not a satisfactory substitute for the practical training that could be given to all students of journalism under the direct supervision of instructors in the department, if a daily paper were published under the direction of the department.

NEEDS OF THE COURSE

1. The greatest need of the Course in Journalism, as is evident from the foregoing statements, is some means of giving students in the course adequate practical training and experience in the important details of newspaper writing and editing. Practically all of the other large state universities that have established courses in journalism have provided printing plants for their departments of journalism at which daily newspapers are published under the direction of the instructors. Since

attention was called to this fact in the last biennial report, three more universities have established printing plants for their students of journalism, so that in six universities practical training is now being given through the medium of a paper published by the department at its own plant. The cost of installing these plants has ranged from \$5,000 to \$15,000 according to the equipment. In one university a regular daily newspaper is published as a competitor of the local papers of the city in which the university is situated; in the other universities the college daily paper is made the medium for giving the students practical experience, under direct control of the department.

The time seems to have come when a decision should be made in regard to the future development of instruction in journalism at the University so far as practical training and experience are concerned. If Wisconsin is to follow the lead of other state universities in this matter, provision should be made for a printing plant at which a daily paper can be published. It may well be argued that a university like Wisconsin that has provided machine shops for the training of engineers; laboratories for the training of chemists, pharmacists, and physicians; a creamery and cheese factory, greenhouses, and experimental farms for the training of agriculturalists; a practice school for the training of teachers; and a practice cottage for the training of young women in home economics, should make equally satisfactory provision for the training of newspaper writers and editors. The number of students enrolled and the importance to the state of the profession for which students of journalism are being trained would seem to warrant the expenditure of an amount proportionate to that appropriated for the equipment of these other departments.

Instruction in journalism, as was pointed out in the last biennial report, is given at Wisconsin with a smaller investment for equipment, with a smaller annual appropriation for salaries, and with a smaller staff of instructors than it is at most of the other large state universities, despite the fact that more students are enrolled in the Course in Journalism at Wisconsin than at any other of these universities.

Thus it is evident that for students of journalism the University of Wisconsin provides less liberally than it does for

students in other practical training courses and less liberally than do other large state universities for their students of journalism.

2. Whether or not it is decided to equip the Department of Journalism with a printing plant, provision should be made at once for adequate supervision of the work of students on the undergraduate publications. Members of the faculty should be assigned to direct the efforts of the students on the editorial and business staffs of these publications just as coaches are provided from the faculty for students' athletic, musical, dramatic, oratorical, and debating activities. If students are permitted to devote as much time and effort as they are now doing to their work on the publications, they should have careful direction in this work so that they may derive the greatest benefit from it. Student journalism undoubtedly has as great educational value as any other form of student activity. That the value of this training and experience could be increased many fold if students did this work under members of the faculty appointed for this task because of their journalistic and business ability and experience, no one can question. This plan would require that one of the members of the instructional staff of the department of journalism and one of that of the department of business administration be assigned to give part of their time to showing student editors and business managers how to do their work on the publications most efficiently. Under present conditions it is impossible for members of the faculty in the departments of journalism and business administration to undertake this direction of students' work on the publications, in addition to their instructional and administrative duties.

3. Other needs of the Course in Journalism include a projecting lantern by which students' written work can be thrown on a screen for correction before a class; a collection of lantern slides to illustrate the history, development, and present conditions in American and foreign journalism; moving picture films to teach students accuracy in observing and reporting; and a reference library for the reading room of the Department of Journalism.

Respectfully submitted,

WILLARD G. BLEYER,
Chairman, Course in Journalism.

REPORT OF THE DIRECTOR OF THE SCHOOL OF MUSIC

Dean E. A. Birge,
College of Letters and Science.

Dear Sir: I submit herewith the biennial report for the School of Music students.

The number of students in the School of Music during the period covered by this report has increased. This is shown by the following comparative statement:

	1912-13	1913-14
Students in regular session.....	76	95
Students in summer session.....	142	211
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	218	306
In addition to this there were students from other colleges electing music	342	328

CHANGES IN THE FACULTY

During the biennium there have been several important changes in the faculty. The Director of the School of Music resigned as director in March, 1914; but he is to continue as a professor during the first semester of 1914-15. I was appointed Director, appointment to take effect at the beginning of the fiscal year 1914-15, and in accordance with this appointment I assumed my duties on September 3, 1914. Professor Peter W. Dykema was appointed professor of music in July, 1913. Assistant Professor Locke, of the piano department, resigned at the end of the year 1913-14.

DEPARTMENTS

The work of the departments of applied music and the theoretical branches has been carried on as in former years, with perhaps a normal development. My six weeks of office has not enabled me to judge of their standards of work, yet I am convinced that these departments suffer in as much as

they do not lead to a specific degree of Bachelor of Music or Bachelor of Arts in Music instead of the vague degree "Graduate in Music". Steps should be taken to remedy this as soon as possible.

There has been given one course which has had a large enrollment, *i. e.*, the Appreciation of Music. This has evidently been treated more from the popular basis than from the scientific. While such a course is extremely necessary and advisable, I feel that it should be given in two distinct sections, if our resources permit it,—one as an advanced course for students in music, the other as a popular course similar to course 114 in Greek, and 130 in German.

There has been a decided increase in every way in the Department of Public School Music. There is a well arranged two years' course which meets the demands of the public school situation as adequately as any training school now in existence.

With the co-operation of some of the schools in Madison, during the past year, the students have had splendid facilities for practice work. Beginning in 1913, all Public School Music graduates are required to have one full year of practice teaching. This, with their training in the University is making them in great demand and they are securing very good positions, with the result of causing the reputation of the department, which is becoming recognized as one of the best and most thorough in the country, to be widely known.

The continually widening field, however, of the Public School Music supervisor, both in the school and community, makes it desirable that opportunities be given by the University for more extended preparation which shall ultimately develop into a four years' course leading to a degree.

CONCERTS

There have been two innovations in this section of the work of the school during the biennium, the first being the introduction of exchange concerts, in the Artists' Series, with another university, which will be of great benefit to the school, the second being the concerts of the Choral Union. Regarding the latter, I speak of the opinions that have been received from several reliable sources. The Yuletide Festival was arranged

in such a way as to convey the spirit and meaning of Christmastide.

The Spring Festival was of larger dimensions and consisted of three concerts, the first by our own orchestra and chorus, the second, an orchestral concert by the Minneapolis Symphony Orchestra, and the last by our own chorus and the Minneapolis Symphony Orchestra, the main work being Verdi's Requiem. All accounts of these concerts have been most enthusiastic.

There were also the usual Artists' Series, faculty concerts, student recitals, concerts by the band and orchestra. While these were of high grade, all must have suffered to some extent in their general effect by not having adequate facilities and proper quarters for giving them, as neither the Gymnasium nor the Music School auditorium are proper settings for such artistic attempts. I may add that I have seldom seen in all my professional career such unsuitable places.

NEEDS OF THE SCHOOL

As a newcomer it is impossible to state adequately the needs of the school. I am therefore giving what is of the most urgent importance.

1. An entire remodelling of Music Hall.

This would cost from \$40,000 to \$60,000. As is well known, the accommodation in Music Hall is very poor, more than half of the rooms are in the basement, and at that there are not enough of them. The auditorium is not properly arranged for seating and the acoustics are very bad. The sums mentioned are based upon sketches prepared by the supervising architect.

2. Improved equipment for the school.

For this item, a sum of from \$10,000 to \$15,000 is necessary. Most of the pianos are worn out, and need replacing. The organ is unplayable, and it is not worth while spending money upon it.

3. Increase in faculty, \$3,000.

As the school curriculum needs some alteration and enlargement, provision should be made for additions to the faculty. A fund of \$3,000 should be allowed for this.

Respectfully submitted,

CHAS. H. MILLS,

Director.

REPORT OF THE DEAN OF THE COLLEGE OF AGRICULTURE

*President Charles R. Van Hise,
The University of Wisconsin.*

Sir:

I am submitting herewith the biennial report for the period ending June 30, 1914. During this interim the work of the College of Agriculture has continued to grow and expand with great rapidity. Not only has there been a marked growth in number of students, but in the relations of the college to the state at large, the work has been greatly broadened and more completely organized.

In the following report only the more important phases of the activities of the college can be touched upon. It is especially necessary in these days of such rapid expansion that plans for the future development of the college should be forecasted as far ahead as possible, and most carefully matured, so that adequate foundations for the work may be properly laid.

This report is presented under the following heads:

I. General activities of the college.

- (a) Resident instruction.
- (b) Research work of the Experiment Station.
- (c) Agricultural Extension Service.

II. Additions to resources.

III. Needs of the college.

- (a) Constructional requirements.
- (b) Organization of lines of work.

1. GENERAL ACTIVITIES OF THE COLLEGE

A. RESIDENT INSTRUCTION

ATTENDANCE

The instructional work with resident students has grown apace within the last few years. At the close of the last biennium (1910-11 and 1911-12) in the regular full year courses there were 609 students in agriculture and 134 in home economics, a total of 743. At the end of this biennium there are 817 in agricultural work and 205 in the women's course, a total of 1022, or an increase of over 37 per cent. In this connection it is important to note that the graduate work has shown a very marked increase. With the development of strong departments, adequately equipped to carry on advanced work, the demand for this type of instruction is rapidly increasing. Students contemplating agriculture from the standpoint of teaching or research are finding that the general four-year course is inadequate to meet the needs of a thorough training which will embrace the fundamentals of both the pure and applied sides of their specialty.

In the Summer Session the expansion has been even more rapid, an increase from 127 to 301. It seems more than likely that the immediate future will see a continuance of this growth, although naturally less rapid when computed on a percentage basis, as the very great demand which now obtains in extension and high school instruction bids fair to exceed for some time the number of suitably trained men that are available for this work.

Attendance on the sub-matriculate courses has also been well maintained, although the larger number of county agricultural schools has increased the opportunities for instruction quite similar to that given in the Short Course. During the first year of this biennium the Forest Rangers' Course was started. This year 28 students were in attendance on this work.

At the close of 1913-14 our college staff comprised the equivalent of 93 members (part-time assistants computed on basis of service rendered). The assignments were as follows:

Resident instruction	40 persons
Research or Experiment Station work	28 persons
Extension Service	18 persons
Control or Inspection Service	7 persons

MODIFICATIONS IN AGRICULTURAL CURRICULA

In a subject that is undergoing as rapid a change as agriculture, it is not to be expected that a hard and fast course of instruction can be offered. The theory on which this course is founded prescribes a large fraction of required work, both in the fundamental liberal arts branches, as well as in the applied field. Adjustments are necessary from time to time to balance more properly the required and the elective work, for further experience is constantly showing where improvements can be suggested.

During this biennium changes were made in the two-year Middle as well as in the four-year Long Course. The required units for the Middle Course were increased from 64 to 68, and changes made which rendered possible a somewhat wider option as to electives. Owing to the fact that this course seems to be drawing a considerable fraction of students from the cities where they have had but little practical farm experience prior to entering the University, the faculty adopted a rule requiring the student to present evidence of at least a full year's practical farm experience before taking the second year of this course.

In the four-year work, a required course in Organic Chemistry has been added, making the chemical work even more important than heretofore. The work in Physics has been rearranged to be given throughout the entire year. The requirements in Bacteriology have been materially altered, while the language requirement for a year of German has been modified, so that a student offering extra language units for entrance is absolved from continuing foreign language work in the course, and option between German and French is now offered.

The unusual demand for teachers in the secondary schools has led to special efforts being made to direct the work of students desiring preparation for this field. While it does not seem advisable to organize a special course to meet this need, a distinct attempt is made to direct the work of students so that their preparation may be more adequate than is likely to obtain where unlimited freedom of electives is permitted.

OPPORTUNITIES IN AGRICULTURE

The field for trained men in agriculture has expanded very rapidly within the past few years and seems likely to continue

for some time to come. The rapid introduction of agricultural instruction into the high school curriculum (five state high schools offered agricultural courses in 1910; 100 in 1913), and the correlation of this work with extension activities in the communities thus served has increased tremendously the demand for properly qualified instructors. The passage this spring of the Smith-Lever Agricultural Extension bill by Congress is giving a still greater impetus to field demonstration work in the colleges.

The salaries that can be secured in the agricultural field are unusually high when compared with the earning powers of the average college graduate. Last year the average salary of our graduates accepting salaried instructional positions was \$1100; those engaged in practical work \$930.

Even with this stimulus, an increasing number of our graduates are going into the practical field. Forty-four per cent of the graduates of the two classes of the current biennium reporting their occupations are now engaged in practical work.

The unusual opportunities that now obtain in agriculture are inducing many students to seek this course without having had any previous practical farm experience. Year by year, the percentage of city bred students is increasing. Now it constitutes nearly one half of our entire enrollment. This year 45 per cent of the freshman class had less than one year of farm experience. About 20 per cent of these had no farm experience whatever. This lack of farm experience of students works disadvantageously to the student, and the faculty are attempting to overcome this defect.

SUMMER SESSION WORK

While the demand for summer work in agriculture comes primarily from teachers who are at work in the secondary schools, and who desire an opportunity to perfect more completely their training in this direction, yet the opportunities offered in the Summer Session have also been eagerly embraced by a not inconsiderable number of other students. For the past two years the ratio of teachers to the student group was substantially 1:1.

For agricultural study in certain lines the summer presents an opportunity that is not offered in equal degree during the regular sessions of the University. Studies on crop production, soils and their management, diseases of plants, horticultural problems,

and farm management work, can be made much better during the growing season than at any other time. For several years a field course in farm management has been given in which an unusual opportunity has been offered to learn at first hand managerial methods as developed on some of the most successful farms of the state. This course has been a feeder to our accredited farm-work, especially as it relates to graduate credit. The success of this extra-mural work has led to similar attempts in other courses for this season. Obviously there are many inherent difficulties in presenting work of this character, but where the time of the student can be wholly employed, it is possible to secure results in this way which cannot be duplicated by resident instruction at the University alone.

For a number of years opportunity has been given students in dairying to continue practical work in the University creamery after the close of the regular six-week summer session. Here again is an opportunity in agriculture that should no longer be neglected. Many field operations can be done only during the growing season, and this summer several courses have been planned to extend beyond the limits of the summer session to a period of ten weeks. Consideration has been given the advisability of continuous sessions in agriculture on a four-quarter basis, but the difficulties in securing a properly qualified staff and the financial problems make it inadvisable to inaugurate this step at present in a general way. The experiment of lengthened sessions will be tried out first with reference to certain additional departments like Soils and Agronomy.

HOME ECONOMICS COURSES

During this last biennium the course in home economics has been differentiated to the extent that it is now possible for the student to specialize in either food or textiles, thus giving a more intensive study to a more limited field. Pedagogically, home economics is now undergoing the same development as agriculture did some fifteen or twenty years ago. Sooner or later the general subject, which relates to all phases of activity as applied to the problems of the home, will be differentiated into more special fields of knowledge, and will necessitate the application of the principles of the fundamental sciences to be applied problems that are pressing for consideration on every hand. More

and more demand is developing for advanced work in the several fields of this subject.

As presented in the report of the Director of the Course in Home Economics, an increasing number of elections are being made by Letters and Science students. The recently organized course in Humanics, reviewing the laws of child development, which was opened last year to seniors as auditors, was elected by about 50 students. About 200 students from Letters and Science are now taking elections for credit.

SUB-MATRICULATE SHORT COURSES

The winter Dairy Course and the Short Course in Agriculture have been continued without any essential change. The inauguration of special exercises at the close of the Short Course has dignified the completion of the work of these students. Special efforts have been made to develop extra-curricular activities with these students. Attempts have been made to create interest in musical and literary society work, and social opportunities have been provided. The results of these attempts have been extremely beneficial. Indeed it may be confidently stated that no class of students in attendance at the University derive more substantial profit from their work than do these farm boys, and no class of students are more loyal to the institution in after years.

The organization of county short courses in agriculture to be given by the county agricultural representatives in the different counties promises to be an interesting educational experiment. Work for two winters of eight to ten weeks each, supplemented with practical work on the farm during the intervening summer, under the immediate supervision of the resident representative, gives an opportunity for the farm boy who has finished the country school and has not gone forward into the high school. Essentially these county short courses are continuation schools in agriculture, but are being conducted without state subsidy, and at a merely nominal expense, as the services of the county representative are thus utilized for instruction during the winter months. The five courses given this past winter in as many counties were attended by over seventy students. It is worth noting that some of the scholars in these schools are already coming to the University Short Course, showing the value of this effort in awakening an educational impulse in the minds of these boys who had dropped out of educational work.

The first year of this biennium a course of instruction was organized for Forest Rangers in connection with the State Board of Forestry. The educational need in this subject is not for an additional number of technical forestry schools, but for brief courses of instruction to train rangers for the practical work of forest management. The course arranged consists of two winters' work at the University with the entire intervening summer spent in instruction and practical work in the woods. Co-operation with the State Board of Forestry in the matter of the field work makes it possible to give admirable training of a practical nature. It will be to the obvious advantage of the state thus to be able to pick well trained men for the development work in reforestation and management of the state forests.

ORGANIZATION OF WORK

The only new department that has been organized in the college this biennium is that of Forestry. This work was started two years ago under Professor Moody and was primarily designed to develop the Forest Rangers' Course, but provision was made for the presentation of woodlot management or farm forestry to both the Long and Short course students. The vacancy made by the resignation of Professor Moody at the end of the first year was filled by the selection of Professor A. M. Cook, formerly Supervisor of the Arapaho National Forest, Colorado. Courses in apiculture have been added to the work of the Economic Entomology department.

The section of Dairy Tests which has heretofore been administered in the Department of Agricultural Chemistry, has been transferred to the Animal Husbandry Department, the work being placed in charge of R. T. Harris, who, for a number of years, has assisted Professor Woll in this work. This arrangement was made when Professor Woll severed his long connection with the college. In point of service Professor Woll was the oldest member of our active staff. The Feed and Fertilizer Control work remains in the Department of Agricultural Chemistry and has been placed in charge of W. H. Strowd.

The work of the Department of Agricultural Bacteriology was increased at the end of this biennium. Heretofore the agricultural students have taken a general course in the College of Letters and Science as a pre-requisite to a course in applied work; also the Home Economics students have pursued their bacteriological training in the same department under Professor Frost.

At the close of this year, Professor Frost was transferred to the College of Agriculture. Hereafter both the Home Economics and Agricultural students will secure their training in this branch in this college.

The chairmanship of the Department of Agricultural Engineering was rendered vacant through the resignation of Professor Ocock in July, 1913. F. M. White has been made acting chairman this year.

The passage of the Potts bill by the legislature of 1913 made possible the more complete organization of the county agricultural representative system. Authorization for the inauguration of the work of these resident instructors in ten counties was made. At the close of this biennium this work has already been organized in the total number of counties possible, all of which are located in the northern part of the state where agricultural development is the most active. E. L. Luther, formerly representative in Oneida county, has been made a field supervisor of this system.

The administration of the Farmers' Institutes has been changed this year. For twenty years George McKerrow has conducted this important work throughout the state. Professor Norgord of the Agronomy Department has been appointed as his successor, but will, however, retain the superintendency of our Hill farms.

But very few changes have occurred in the ranks of our professorial staff. Mr. A. W. Hopkins, formerly editor of the Wisconsin Farmer, was appointed Agricultural Editor and Professor of Agricultural Journalism, in place of J. Y. Beaty, resigned. Professor Peterson, of the Soils Department, resigned in September, 1912, to accept a position in Idaho. Other than those above mentioned should be recorded the resignation of Professor Hoffmann, whose special field was soil bacteriology. His position has been filled by the appointment of Professor E. B. Fred.

B. RESEARCH WORK OF THE EXPERIMENT STATION

The agricultural experiment stations were founded by the federal government to discover the fundamental principles of agricultural science and to perfect methods of improving agricultural practice, but any conclusions drawn must be tested out under normal field conditions in the crucible of practical trials before the same can be safely utilized in general practice.

The great variation in the character and quality of the farm-

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ing operations in this state makes the work of the Experiment Station cover a wide variety of conditions. Our problems range from those found in old agricultural sections, such as questions relative to the restoration and maintenance of fertility and the prevention of fungous and insect diseases, to the inquiries of the pioneer on the subjugation and management of raw land and the adaptation of crops to relatively new and untried localities. The great majority of lines of endeavor are those that have been under way for a series of years, for naturally the problems that an experiment station should attempt to answer are those that are fundamental, of long duration, and therefore beyond the ability of the individual to try for himself, even if he were in position to attempt the same.

In the last biennial report attention was called to the exceedingly rapid growth of the teaching work, and the danger that exists to the research work of the Experiment Station by the unexpected demand made on members of the staff to meet the teaching needs. While this pressure still continues, great care must also be taken to see that the rapidly expanding work of extension does not interfere with the proper development of research. It is not to be expected, nor is it wholly desirable, that all three phases of agricultural development—teaching, research, and extension—shall be developed in each department in an equal degree, but the college of agriculture that is serving its constituency to the fullest extent must be one that is training its youth efficiently, pushing forward the boundaries of knowledge, especially with reference to the particular problems of the state, and finally so organizing and correlating its work that the results of the laboratory are applied by the field worker. These results must be presented in such form that they are not only susceptible of direct application but that they may be driven home with such force as to command adoption into current practice.

It will be impossible to give here a digest of even the more important research activities of the Experiment Station. These are quite fully detailed in the reports of the Director of the Experiment Station, which have been published as Bulletins 228 and 240, for the years 1912 and 1913 respectively.

PUBLICATIONS

In the last two years 36 bulletins and circulars of information have been issued, aggregating 1609 pages. The following list will indicate the scope of work thereby presented.

No	Title	Author	Date of issue.
BULLETINS			
223	The Climate of Wisconsin and Its Relation to Agriculture.....	Whitson and Baker.	July, 1912
224	Selecting Steers for Feeding.....	Tormey.....	June, 1912
225	Commercial Varieties of Potatoes for Wisconsin.....	Milward.....	July, 1912
226	The Wisconsin Dairy Cow Competition.....	Woll and Harris.....	July, 1912
227	The Wisconsin Nursery and Orchard Inspection Service, 1910-1912.....	Sanders.....	December, 1912
228	Report of the Director, 1911-1912.....	Russell.....	January, 1913
229	The Right Drain for the Right Place.....	E. R. Jones.....	April, 1913
230	Soil Acidity and Liming.....	Whitson and Weir.....	May, 1913
231	The Marketing of Wisconsin Cheese.....	Taylor, Schoenfeld and Wehrwein.....	April, 1913
232	Fitting Yearling Wethers and Lambs for Exhibition.....	Humphrey and Kleinheinz.....	August, 1913
233	Wheat Growing in Wisconsin.....	Delwich, and Leith.....	September, 1913
234	Rural Social Centers in Wisconsin.....	Galpin.....	January, 1914
235	Sowing Crops vs. Silage for Dairy Cows in Summer.....	Woll, Humphrey and Oosterhuis.....	March, 1914
236	Soy Beans—An Important Wisconsin Crop.....	R. A. Moore and Delwiche.....	April, 1914
237	The Control of Diseases and Insects of Tobacco.....	J. Johnson.....	May, 1914
238	Agricultural Co-operation.....	Hibbard.....	June, 1914
239	Three Creamery Methods for Making Buttermilk Cheese.....	Sammls.....	June, 1914
240	Report of the Director 1913.....	Russell.....	June, 1914

RESEARCH BULLETINS

25	Studies on the Factors Concerned in the Ripening of Cheddar Cheese.....	Hastings, Evans, and Hart.....	July, 1912
26	Studies in Dairy Production.....	Woll.....	October, 1912
27	The Manufacture of Cheddar Cheese from Pasteurized Milk.....	Sammls and Bruhn.....	December, 1912
28	Avian Tuberculosis.....	Hastings and Halpin.....	March, 1913
29	Nature of the Changes in the Solubility and Availability of Phosphorus in Fermenting Mixtures.....	Tottingham and Hoffmann.....	May, 1913
30	Calcium and Phosphorus Supply of Farm Feeds and their Relation to the Animal's Requirements.....	Hart, Steenbock, and Fuller.....	February, 1914
31	The Control of Damping-off Disease in Plant Beds.....	J. Johnson.....	March, 1914

CIRCULARS OF INFORMATION

38	Wisconsin Bankers' Agricultural Contests.....	R. A. Moore and Hatch.....	June, 1912
39	Directions for Vaccinating Against Hog Cholera.....	Hadley.....	July, 1912
40	Distribution of Licensed Stallions in the Counties of Wisconsin During 1912.....	Alexander.....	September, 1912
41	The Milk Sediment Test and Its Application.....	Baer.....	September, 1912
42	Chemical Analyses of Licensed Commercial Feeding Stuffs, 1912.....	Woll.....	April, 1913
43	Commercial Feeding Stuffs and Fertilizers Licensed for Sale in Wisconsin, 1913.....	Woll.....	March, 1913
44	Analyses of Licensed Commercial Fertilizers, 1913.....	Woll.....	April, 1913
45	Distribution of Public Service Stallions Enrolled in the Counties of Wisconsin During 1913.....	Alexander.....	September, 1913
46	Commercial Feeding Stuffs and Fertilizers Licensed for Sale in Wisconsin, 1914.....	Strowd.....	May, 1914
47	Chemical Analyses of Licensed Feeding Stuffs 1914.....	Woll and Strowd.....	June, 1914
48	How to Rid Our Farms of Weeds.....	Stone.....	June, 1914

C. AGRICULTURAL EXTENSION SERVICE

The work of the Experiment Station is only half done when an important method is devised or a discovery is made. To render this result effective and of use, it must be applied. The printed reports and bulletins reach only a small proportion of the total farming body. Their suggestions and injunctions make their impress usually on only the more progressive individuals. The most effective way to secure the application of the scientific results of Experiment Station work to field practice is through the medium of actual demonstrative work carried out on the farms of the state. This has been attempted through the organization of a special division of the college known as the Agricultural Extension Service. During the past biennium the work of this service has been greatly expanded. The farmer who cannot come to the college has reaped the advantage of the work done, through the fact that the college has gone to him, but in doing so, it must be remembered that no small part of the increased expense of the University has been occasioned by the development of this state-wide service in which the people of the state have immediately and directly participated.

SMITH-LEVER EXTENSION BILL

As rapid as has been the expansion of the Extension Service in the past three or four years, it is doubtless true that the further development of this work in the immediate future will be even more rapid than it has been in the past. The passage of the Smith-Lever bill by Congress in June, 1914, giving federal aid to the agricultural colleges for co-operative extension work in agriculture and home economics is doubtless destined to exert as strong an influence on the organization and development of this work as did the passage of the Hatch and Adams acts on the research activities of the experiment stations. There is grave danger that this stimulus will result in an over emphasis to this work, and during this period of organization, it is especially necessary that well matured plans be made to minimize as much as possible the unavoidable errors which are likely to occur where rapid expansion obtains. The Smith-Lever bill gives to each state of the Union an initial sum of \$10,000 annually. Supplementary funds, as stated below, are available, which amounts

are increased annually for a period of eight years, provided the state appropriates for specific agricultural extension purposes an amount equal to that furnished from federal sources for all sums in excess of the initial \$10,000. This supplementary federal appropriation consists of \$600,000 for the next fiscal year, which amount is to be divided among the several states of the Union, in the proportion which the rural population of each state bears to the total rural population of all the states. These sums are to be still further increased by additional federal appropriations each year thereafter, for a period of seven years, by a sum exceeding by \$500,000 the sum appropriated for each preceding year, and annually thereafter. This makes in all, a federal appropriation amounting in nine years to \$4,580,000 annually. On the basis of the last federal census it will be possible for Wisconsin to receive at the end of nine years from July 1, 1914, an appropriation aggregating \$109,700 annually, provided the state meets the federal appropriations dollar for dollar after the first \$10,000. These funds can only be used for definite extension projects in agriculture and home economics which are first approved by the United States Secretary of Agriculture.

EXPANSION OF EXTENSION SERVICE BY LEGISLATIVE PROVISION

Hog Cholera. The continued spread of hog cholera in the state and the inability of the college to meet the extraordinary demands made upon it for hog cholera serum led the last legislature to make special provision for this work. For the present biennium there was appropriated \$2,500 per annum, in order to extend the serum plant. The legislature authorized the manufacture of serum and its sale at one cent per cubic centimeter, which is substantially the actual cost of production. Even with these increased facilities, it has frequently been impossible to keep up with the demand from the farmers for protective system to be used in their herds.

Seed Inspection. The inadequacy of the present statutes relative to the examination and inspection of agricultural seeds also led the legislature to make provision for the appointment of a field inspector who would inspect and test seeds as exposed for sale in the open market to determine their purity and viability. The result of this law has enabled a much more energetic campaign to be made, and cases have already been prosecuted and

convictions secured where misbranded and adulterated seeds had been sold.

State Soils Laboratory. Numerous demands are made on the Station for the examination and analysis of soils which cannot with justice be brought under our Extension Service, as they are for substantially commercial purposes. Many intending purchasers and land owners desire to know more nearly the real value of lands prior to purchase or expenditure of moneys for their improvement. To meet this need, the last legislature established the state soils laboratory, making an appropriation of \$2,000 annually for its maintenance, in addition to the payment by the owner or occupant of the land, of prescribed fees for the field examination and chemical analysis of such soils. The total expenses of the laboratory to the end of this fiscal period have been \$1306.38; the receipts \$307. This laboratory was not organized until the year 1913-14, but already 237 requests have been received from 90 different communities for such examination. One hundred and forty-seven farms have already been visited and sixty-eight complete reports rendered. The results of these tests have proved of much value to the owners or occupants of the land. In a number of cases poor field results have been shown to be due to an exceedingly low phosphorus content, which condition has resulted from soil exhaustion, as shown by comparison with adjacent virgin soil samples. The relation of acidity to legume growth and soil fertility has also been given special attention. The field examination which is made of the farm takes into account all matters influencing fertility, and emphasis is laid upon the fact that fertility is dependent upon farm management, as well as the character of the individual types of the soil.

In connection with this work, numerous meetings have been held with groups of farmers where their special interest in the analytical results made it possible to combine the work of the laboratory with the extension service in a peculiarly valuable way.

Marsh Reclamation Work. The last legislature also modified the drainage law relative to the reclamation of wet lands, requiring the Agricultural College to make a report upon the quality of the soil, the advisability of draining the area involved, the probable benefits from the proposed work, the probable cost of construction, and the probable distribution of benefits among the

several parts of the district. Under the regulations approved by the Regents, a deposit fee is required of any district or locality organizing under the terms of this law, this deposit being used to defray the actual field expenses incurred in complying with the legal provisions. The work of the college in securing and presenting to the farmers interested this necessary data has made it possible for these communities to act more intelligently on the question as to whether the proposed benefits were of sufficient value to warrant the expenditures incurred in such work.

County Agricultural Representative System. The new line of extension endeavor organized during the last biennium by this college, and known as the county agricultural representative system, has been materially expanded and strengthened during the present period. When this work was first organized, it was on a tentative experimental basis, but the passage of the Potts bill by the last legislature gave specific sanction to the development of this system of locating resident representatives of the Agricultural College in the several counties in the state. We have denominated these resident instructors as agricultural representatives rather than specialists, advisers, experts, or agents, terms by which they have commonly been known in most of the states where the system has been inaugurated. They are urged "to consult" with the farmer rather than "to advise" him. They do not pose as experts but are the educational middlemen who represent the Agricultural College, and are located in the field for the specific purpose of being in close contact with the man who does not take advantage of the opportunity of securing information by correspondence, but who is willing to ask for help, if there is someone who perhaps can aid him in the solution of his problems.

While the legislature was willing to increase the number of representatives beyond that asked for by the Regents, it was thought wise to limit this number at the outset as was finally done, because of the difficulty of securing thoroughly qualified men to assume these most exacting and responsible positions.

This form of agricultural extension service has since met with rapid acceptance in a large number of the different states, but in the development of the Wisconsin plan, two unique features have been incorporated which, in our judgment, are of fundamental importance in the development of the work on a permanent basis.

First, it must be kept in mind that this system is founded primarily for educational purposes, and that its greatest effect on the community will be produced through a close relationship with the usual educational forces, quite as much as through the aid which is offered to the mature farmers themselves. To tie the work of the county representative to the educational life of the community, he is detailed to give the instruction in agriculture in the county training schools of the several counties in which such work is organized. In this way it has been possible for him to develop personal relations with many of those who are to become immediately the rural teachers in these counties, and who are required by law to give instruction in agriculture.

The development of the county short course in agriculture for the farm boy who has either finished or left the district school, and thus lost his connection with continued educational progress, has also proved to be of material educational value.

The second distinctive feature is that this county agricultural work shall be supported by public taxation. In most states this work has been initiated by local or outside contributions, but we have felt from the beginning that it was not wise to trust to the reed of private philanthropy or personal support, but that this type of service should be founded on the basis of a publicly supported institution. The initiative in this work always rests with the people. If they do not wish to tax themselves for this purpose, the work is not organized. The University is merely the agent to carry into effect the wishes of the individual county when the legally constituted authorities of this political unit—the county board of supervisors—decide that they desire to take advantage of the opportunities offered. The entire cost to the county is so small—from \$1000 to \$1200 or \$1300 annually—that the burden placed upon any individual taxpayer amounts to little. The appropriation of this sum by the county makes available automatically a state appropriation of \$1000 per county, the responsibility of the selection of the representatives resting with the Regents of the University.

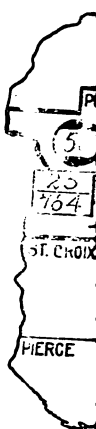
At the end of the last biennium representatives were at work in only three counties. At the end of this biennium nine men were installed in the following counties: Oneida, Eau Claire, Barron, Price, Langlade, Lincoln, Forest, Taylor, and Vilas. Polk county has voted the money, and a representative was selected to begin here August 15. A number of other counties

have either already voted to establish a representative, or are seriously considering the plan. According to the terms of the Potts bill, six additional representatives can be established after January 1, 1915. So far all of the requests have come from the counties in the northern half of the state, although such counties as Eau Claire and Barron represent old, well settled regions. The results already attained in this service have been exceedingly gratifying. The general feeling is that this latest effort of the Agricultural College to get in the closest possible touch with the man on the soil is destined to be the most successful mode of approach yet tried. If we can maintain the high standards that have so far been followed in the selection of representatives we have little to fear from the practical workings of the system.

ADDITIONAL LINES NEWLY ORGANIZED

Co-operation with State Bankers' Association. During this biennium the station has developed a co-operative plan with the State Bankers' Association and has established what are known as Bankers' Pure Bred Seed Circuits as a new agency for the dissemination of pure bred seeds which are acclimated to the various portions of the state. Prizes are offered at the first contest held by the local banks in any town for the best products of the ordinary varieties raised in the neighborhood and at this contest pure bred seed is distributed by the college. At the contest held the second year a comparison of the ordinary and pure bred types makes an excellent object lesson. Sixteen such contests have been held each year of the biennium, with an aggregate attendance of 16,575 persons. During this last year the Bankers' Association has started the publication and distribution of the Wisconsin Bankers' Farm Bulletin which is issued each month and distributed at cost to the various state bankers for individual distribution among the farmers in their communities. Already over 90 banks are distributing more than 30,000 copies per month of these leaflets, the text of which is prepared by members of our college staff.

Alfalfa. Special efforts have been made during the last two years to start the propaganda through the state regarding the cultivation of alfalfa. The college has co-operated with the Wisconsin Experiment Association in forming an Alfalfa



FARM VISIT



MEETINGS
ATTENDANCE



COOPERATIVE
TRIALS

LIME, FERTILIZER
FIELD CROPS
CONTROL, ETC.



COW-TESTING
BUTTER FAT, TUBER



COUNTY SCHOOLS
COURSE ATTENDING
SCHOOL
NUMBER OF STUDENTS

Order of that association which now has a membership of 700. Co-operative trials have been in progress in all parts of the state to determine the influence of various methods of seeding, the necessity for the application of lime to correct the acidity of the soil, and various cultural methods, including inoculation of the soil. While twenty years ago this forage crop was practically unknown in the state, there are now grown over 35,000 acres. This last year the college co-operated in the purchase of large quantities of seed for members of the Alfalfa Order, enabling them to secure high quality seed at a very material saving. Over 25 tons of seed, worth \$9,000 were thus purchased and distributed to members at a saving of over fifteen per cent.

Potato Work. Wisconsin stands near the head as a potato growing state. The opening up of large areas of virgin soils in the central and northern portions of the state has resulted in a material expansion of this industry. In extending and improving the culture of the potato in the state, Professor Milward has paid special attention the last two years to the development of community centers which will do for the potato industry what the Community Breeders' Associations have done for dairy cattle improvement. Effort is being made to secure the co-operation of growers in these various localities in raising standard types of potatoes so as to permit of the marketing of car lots, for which it is possible to secure higher prices than for mixed stock. Interest in potato culture has also been greatly increased through the organization of a State Potato Growers' Association, of which Professor Milward, who has devoted much time to the development of the plan, is secretary. The results obtained from the "Potato Special" educational train, together with the meetings of this society, in which the college authorities have been co-operating, has done much to place the industry upon a much firmer footing than heretofore. The attempt will be made this year to introduce a method of field inspection and certification which will be of special importance with potato stock that is used for seed. Wisconsin has unequalled opportunities for the production of healthy, high quality seed stock, with especially good markets in the South and West.

MARKETING PROBLEMS

The work of the Agricultural Economics Department has been materially expanded this biennium through the development of research work on marketing problems. At the specific request of the State Board of Public Affairs, special funds were provided to undertake certain studies that were deemed essential in laying a proper foundation for the development of the state's policy in this direction. Much data has been collected on the marketing of potatoes and cheese, including both the cheddar and foreign types made in the state. In the matter of organization it has been deemed the proper policy of the college to concern itself with the accumulation of adequate data on such economic problems, so as to give the necessary scientific basis for a constructive policy of development by the business interests concerned. The establishment of the proper criteria for standards, brands, etc., is legitimately an educational function, and as such should be made by the educational interests of the state. The organization of co-operative enterprises, the federation of business units, must of necessity rest largely upon the initiative of commercial interests. The state, if it assists in this function, can do so better through a regularly constituted board, such as the Board of Public Affairs, than through the college. As an illustration of the general principle may be mentioned the efforts of the college made in connection with the State Board in formulating the necessary requirements with reference to the application of a state cheese brand for the Sheboygan County Cheese Producers' Federation.

The problems relative to rural credit have also received special attention this last year. Considerable effort has been spent on the determination of the actual conditions which exist not only in the well developed rural regions of the southern part of the state but more particularly how much the new settler in the northern part of the state has to pay for money he borrows.

Farm Contests. Through the generosity of Ex-Governor Hoard in furnishing a fund, a state farm contest was inaugurated last year by Professor Otis to determine the relative profitableness of dairy farms where business records were

kept. Over 175 farmers from ten different counties entered the preliminary county try-outs, at which all contestants met to study the comparative results. The three highest in each county competed in a state contest at which the awards were made. An unusual amount of interest has developed among the participants in this contest, as the application of accounting methods has stimulated many of them to a careful study of their own problems. Such demonstration work with reference to the business end of farm problems cannot but be of great value. Arrangements have been perfected for the wider extension of this work next year.

FARMERS' INSTITUTES

This year brings to a close twenty years of service of George McKerrow as Superintendent of the Farmers' Institutes. This period has been marked by a general growth of the institute idea, which historically may be regarded as the progenitor of the modern agricultural extension principle. Acting in accordance with the plans announced by Mr. McKerrow at the beginning of the year, he tendered his resignation to take effect June 1, 1914. Professor C. P. Norgord, of the Agronomy Department, who has had charge of various phases of our agronomic extension work, has been selected as his successor.

Normal Institute. The most important new feature in connection with the operation of the Institutes this biennium has been the inauguration of a Normal Institute held here at the college at which all of the Farmers' Institute and Extension workers were gathered together for a series of conferences lasting one week. At this Normal Institute the subjects which were to be emphasized during the winter campaign were especially considered, and efforts made to bring before the conference worker graphical methods of illustration which might be adopted by them in their meetings. The result of this has not only harmonized the work of the field instructors as between themselves, but has tended to unify the field teaching of these workers with the experimental results secured by the college. During this last year, at the request of the Regents, a faculty committee has been appointed to consider the formulation of policies as related to the Farmers' Institutes.

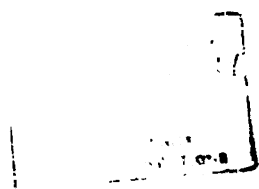
Under the new administration of the institutes, the old established type of farmers' institutes conducted by practical farmers will be continued, but in addition thereto, efforts will be made to organize special feature institutes for the consideration of special topics of timely importance, these to be held during the summer as well as the winter. Some of the work connected with the educational trains will be transferred to the Farmers' Institutes, as well as crop demonstration work on the county and state farms, heretofore conducted under the direct supervision of Professor Norgord.

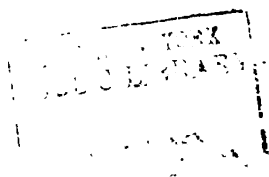
Other Lines of Extension Endeavor. The above lines have been inaugurated this past biennium and represent only the new phases of extension endeavor. The various projects that have been in operation for several years have all been continued, but as the results obtained are available each year in detailed form in the Director's Report of the Experiment Station (see Bulletins 228 and 240), reference is here made only in summary form.









Professor Humphrey has organized 8 more community live stock breeders' associations, making 83 such organizations in all to date. Professor Norgord held 17 demonstration meetings on the county and state farms where various lines of work are in progress on field crop improvement. Improved grains distributed through the medium of the county school superintendents were placed in the hands of over 20,000 school children each year. The winners of the corn contests held at the county fairs are brought to the University in February. Eighty-six boys were in attendance in 1913 and 154 last winter. The Agricultural Bacteriological Department has made and turned over to the Live Stock Sanitary Board over 100,000 doses of tuberculin in the last two years for use in testing dairy herds to reduce bovine tuberculosis. The demonstration field work on the use of fertilizers, especially phosphate and potash, and the application of lime to correct acidity and inoculation for legumes has been continued and extended by the Soils Department. Similar extension work by the Horticultural Department has been maintained on the spraying of orchards for control of fungous and insect pests. The official testing of dairy cattle for production records has now reached proportions four times as great as it was four years ago.



- FIELD CROP D
- SOIL MANAGE
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- PRELIMINAR
- CERTIFIED
- ORCHARD D
- TOBACCO B
- WEED ERAD
- SCHOOL GR
- ★ SILO BUILD
- FARM MANAG





-  FARMER
-  FARMER
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-  SEED
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- CONTE

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II. ADDITIONS TO RESOURCES

BUILDINGS

The main additions to buildings for the use of the college in this last biennium have been the Agricultural Chemistry and Home Economics structures.

Agricultural Chemistry. The Agricultural Chemistry building is a reinforced concrete structure, costing \$90,000. It consists of a main structure 66' x 108', which houses an auditorium of 353 seating capacity, with a three-story wing, 51' x 132', which is used largely for laboratory purposes. The completion of this building has permitted the removal of the Agricultural Chemistry Department from the central agricultural building and will take out of a non-fireproof structure a number of laboratories in which the fire hazard is high. Besides housing the chemical laboratories for all phases of chemistry as applied to agriculture and home economics, the recently organized Department of Forestry and the Poultry Department will also be assigned quarters in this building. The attic will be used as a permanent exhibit room for the display of the educational exhibits which are made annually at the State Fair.

Home Economics Building. This building will house not only the Department of Home Economics, which has been heretofore crowded in the attic of Lathrop Hall, but temporarily the offices of the University Extension Division as well. It is a five-story structure 131' x 45' with a four-story wing, 91' x 47'8". The Home Economics Department will occupy the entire wing and a portion of the main structure. The completion of this building will give some relief to a department that has been greatly handicapped for the last three years.

Library Stack Room. This fall our exceedingly valuable agricultural library will be housed in the new fireproof quarters which have been provided by the addition of a two-story wing 25' x 50', which is attached to the auditorium and library unit of the central agricultural building. This fireproof stack room is sufficiently large to include not only our present library, but will furnish necessary space for a number of years to come. The removal of the present book stacks in the agricultural reading room will permit of an enlargement of this space. Altogether

this improvement is one of greatest moment to the permanent work of the college, as it has been a source of much concern to keep these valuable collections under conditions where the fire hazard is as great as it is in the central agricultural building.

The transfer of the Department of Agricultural Chemistry to its new quarters has permitted a reassignment of space in the main building which has materially improved the working facilities of a number of the departments. Expansion of the bacteriological laboratories has been made especially necessary by the transfer of a large part of that work in Letters and Science to the new quarters provided in this building. The facilities of the Departments of Agricultural Economics, Experimental Breeding, Animal Husbandry, Veterinary Science, and Agricultural Journalism have also been materially improved through this rearrangement of space.

The transfer of the old swine barn to the Department of Experimental Breeding for expansion of its work in research and teaching lines necessitated the construction of new quarters for the Swine Department which was built in the summer of 1913. During this year it also became necessary to construct additional quarters for the use of the Veterinary Department in the manufacture of anti-hog cholera serum.

Branch Experiment Stations. The three branch experiment stations located upon the sandy Jack pine lands at Spooner, the Lake Superior red clay at Ashland, and the fine grained Colby silt loam at Marshfield were all established prior to this biennium, but the facilities at these stations have been materially improved during this biennium. At Spooner and at Ashland, when these stations were established, they were located on cut-over lands, and much effort has been required in clearing and subduing this land to get it in shape for use. At the Spooner station a cottage has been built for the foreman, an addition made to the barn for the housing of a dairy herd, and a large concrete potato warehouse completed for the storing of our seed potato crop. At Ashland a foreman's cottage and one barn, as well as a commodious office plant for laboratory purposes have been constructed. The station at Marshfield was formed from the union of two separate farms. Considerable moving and repair work has been done and a new forage barn constructed this last year. At all of these branch stations additional facilities by the way of buildings will also be required, but it is to be hoped

that these can be added from time to time as resources will permit. What has been accomplished within the short space of time since these areas were taken over as a waste of blackened stumps warrants a reasonable expansion as facilities will permit.

County Demonstration Stations. Chapter 624, Laws of 1911, authorized the establishment of three county demonstration stations to be maintained jointly by the county and the state on which purely demonstrational work was to be carried out, which would be of value to the respective localities in applying suitable methods for the farm problems in any particular section. The Douglas county station was located on the red clay type of soil in the city of Superior in 1911, 20 acres being leased for this purpose. In 1912 this was extended by the further lease of 13 acres additional, and on this station satisfactory crops of clover, pea, wheat, and other grains are being grown.

The Rusk county demonstration station was located in 1912 at Conrath on the Kennan clay loam. As this section is in the early pioneer stages of farming and the settlers are actively interested in dairy development, a small dairy herd has been added to this station for demonstration purposes.

The third county station was organized in 1913 in Marinette county, the location being made on the site of our old sub-station at Crivitz, 53 acres of land being leased for this purpose. The results accomplished on this dominant type of sandy soil have been such that the people of the county were very glad to avail themselves of the opportunity to establish a demonstration station rather than to see the work of the old sub-station abandoned.

III. THE NEEDS OF THE COLLEGE

A. CONSTRUCTIONAL REQUIREMENTS

Equipment of Soils Building. While appropriations were made by the last legislature for the construction of a wing to the Soils building and plans have been prepared for the same, the contracts for the erection of the structure have not yet been made. The postponement of the realization of these plans is seriously interfering with the efficiency of the work of the department. With the constantly increasing number of

students who are compelled to take this required work as sophomores, the problem of housing the same becomes increasingly difficult. The allotments made so far only concern the building itself. The estimates of \$58,000 will not cover the necessary incidental expenses of construction, such as architect's fees, grading, heating during construction, and the necessary equipment to enable the building to be utilized. No estimates of such expenditures have yet been made.

Plant Industry Building. The largest and most important need of the college which should be considered this year is to increase the facilities for plant industry work as embraced in the Departments of Agronomy and Plant Pathology. When the Agronomy building was constructed some eight years ago, a serious mistake was made in erecting a building for this important department which was so small that its capacity was wholly utilized from the time the department moved in. Structurally the present building is of such form that it cannot be economically enlarged. The one lecture room in this building, which has a capacity for less than one hundred fifty, is too small to hold several of the classes of the department, so that in recent years it has been necessary to repeat the lecture instruction to the different sections in the laboratory. The character of much of the laboratory work is such that table space is needed where the laboratory material can be left on the student tables through the several class periods. Now the one laboratory has to be cleaned up between class periods as several different types of work are carried on in the same laboratory. The department needs considerable space for the storage of laboratory material in the form of sheaf grains, forage crops, as well as seed grains. This material should be adjacent to laboratories where needed and to be readily available should be classified and stored under vermin-proof conditions.

Office room in the present building is altogether inadequate. This year it was absolutely necessary to cut up the large laboratory to make offices for the new men in the department.

The Seed Inspection work has all developed within the past three years. No provision whatever was made for this work when the building was constructed. This work has now grown to be of much importance. During the rush season in the

early spring eight to ten workers are required to handle this important branch of the state's service.

The work of the Experiment Association is all carried on from this center. Provision should be made for the utilization of the exhibit material which would be available from the annual exhibitions of this association. A commodious exhibit space for such material would greatly add to the value and importance of this work and enable much valuable material now incapable of utilization to be made available.

The work of this department has been of inestimable value to the upbuilding of the agriculture of the state. Its importance is such and the need for adequate quarters so imperative that the consideration of this problem should receive the attention of this coming legislature.

The situation in the Department of Plant Pathology is substantially the same. This department was only organized four years ago. Temporary quarters were assigned to it in the general administrative building, but it was apparent after the first year that larger quarters would be necessary. When the Horticulture building was planned this department was assigned the upper floor of this new building with the expectation that these quarters would be sufficient for some years. Before the building was occupied it became necessary to change the plans and finish the attic in order to accommodate the general work of the department. At a small cost very fair quarters were here provided for this work, but the increase in number of students has again reached such proportions that we are now in a condition where further growth will seriously interfere with the quality of all of the work done in the department.

The student enrollment alone since the organization of the department indicates the necessity of increased facilities. Total student registrations have increased from 23 in the year of organization (1909-10), to 211 in 1913-14. The number of advanced and graduate students has also greatly increased, until now the department has more advanced work than any other department of the college.

The situation with reference to greenhouse facilities is as badly congested as is laboratory and class room space. Much of the investigative and advanced student work has to be done under conditions of thorough control, which is only possible un-

der glass. These facilities moreover should be in physical contact with the laboratories, as is the case with the present pathologium. But these quarters have long since become inadequate and in providing for the future this requirement should be kept in mind. In making further provision for the plant disease work, it should of course be understood that the present facilities of the department would be utilized, except so far as the natural growth of the horticultural work would require some additional space in the present building.

When it is recognized that plant diseases impose an annual tax on production of probably at least ten per cent of total values, that American science in this field leads the world in its application to agriculture, that the department we have is recognized as unequalled by that in any other institution in this country, it seems wise to plan our development so that most efficient results can be secured. Not only does the crowded condition of the department greatly interfere with student work but the research work is also greatly handicapped. Pursuing the policy of setting graduate students on applied problems of economic importance to the state, it has been possible to increase materially the amount of work accomplished. The experimental results obtained by the department have been of greatest possible value to the agricultural interests. The pea canning industry, in which Wisconsin occupies the foremost position (as we pack over forty per cent of the entire output produced in America), has been rescued from threatened destruction by the discovery of methods of controlling the pea blight. Cabbage culture in the truck regions of the southeastern part of the state has been largely abandoned because of "cabbage sick" soil, *i. e.*, disease-infested land. Through the development of resistant strains of commercial varieties, the return of this industry to the lake shore regions is now possible.

To secure the necessary facilities for these two departments as here presented, it seems most feasible to add a wing to the present Horticulture building. The obvious advantage of this arrangement would be to concentrate most of the plant industry operations of the college under one roof. In this way the three departments of Horticulture, Plant Pathology, and Agronomy could use the larger lecture rooms in common, thus materially increasing the utilization of such space. Such a structure should be three stories in height, including the base-

ment, and if constructed in a manner similar to the agricultural buildings recently built will permit of utilization of the attic, in addition to the three floors, for class room or laboratory purposes. For the purpose of these two departments 32,000-35,000 square feet of floor space is needed which at the ordinary cubage rate would require \$85,000 for the building. The necessary equipment for these two departments would in this case be relatively less than would generally be required for a new building, as substantially all of the present agronomic equipment can be utilized.

In this connection the question may be raised as to what use would be made of the present Agronomy building. The Agricultural Economics Department which now occupies the east portion of the fourth floor of Agricultural Hall is expanding very rapidly in its work. By far the larger part of their work is statistical in character and at present they are in a non-fire-proof building with no vault space available on this floor. The danger from fire is always present and with their records thus exposed it is a source of constant anxiety. It seems entirely feasible to assign the fireproof Agronomy building to this department. This building could be utilized by this department with a minimum change in internal arrangements, as there is no expensive laboratory plumbing to tear out or install.

Abattoir. For some years, we have considered with the Animal Husbandry Department the feasibility of introducing a course into our curriculum on the slaughter of animals and the curing and handling of meats. From the standpoint of animal nutrition, the crucial test of different feeding methods can only be determined by the "block test," i. e., how the animal cuts up for food purposes. The constantly rising price of animal products is also making more important the question of preparing on the farm the meat supplies for the home. Our students should be given the opportunity to learn how to dress a carcass, cut up the same for food, and the utilization of by-products. The Home Economics Department requires material on which to demonstrate the different "cuts" of meat from the different food-producing animals. Along these various lines we are able to do practically nothing at present where control of conditions can be had. The product of such work might be utilized by the commissary departments of the University. Nine colleges of agriculture now offer courses of this character in all of which the

work is popular. A small abbatoir with facilities for chilling and holding meats of all kinds would serve the needs of the Departments of Animal Husbandry, Poultry Husbandry, and Home Economics. Such a structure need not be of expensive construction. An expenditure of \$5,000 to \$8,000 would probably suffice to build and equip facilities sufficient for this purpose.

Greenhouses. With our rapidly increasing student growth the necessity for greenhouse space for winter instruction operations becomes much greater. The Horticultural Department asks for two 100-foot houses, while for the work of the Agricultural Chemistry and Economic Entomology departments together an additional 100-ft. house is needed. To these needs should be added the necessary greenhouse space to be attached to the proposed building for Plant Pathology and Agronomy. These latter structures, however, could hardly be constructed until the new building was built, but glass house space will be urgently needed here in a year at most. Of the above needs, however, two 100-ft. houses should certainly be available for the fall of 1915. These would be attached to our present group of glass houses, thus economizing in heating and control.

Farm Buildings. For years there has been a strong demand for the enlargement of our beef herd, but so far the small herd we have had has been kept in the basement of the old horse barn. With the rising price of meat-producing animals, it is becoming much more profitable for our farmers to give more attention to beef production, and the demand is becoming more insistent for adequate expansion of this phase of our animal husbandry work. In the future constructional work, it had always been the plan to construct a beef cattle barn, but a more economical arrangement is here proposed. We can utilize more completely the old horse barn for this purpose, converting into suitable stable quarters the first floor, in addition to the basement which is now used for the present herd. This will necessitate the removal of the carpenter shop and vehicles to other quarters. Our machinery quarters are inadequate to store under cover our farm machinery and it is proposed to construct a wing to the present wagon shed that will permit of the storage of heavy machinery and vehicles closer to the horse barn where they will be much more convenient. The present tool barn could then be turned into a repair shop, in which the blacksmith and carpenter shops could be housed together.

The present dairy stable houses 34 animals. We have about 50 dairy animals besides the young stock, and Professor Humphrey recommends very strongly that the herd be increased by the addition of not less than 25 to 30 more cattle. These animals are needed primarily for instructional purposes, as our classes are increasing rapidly, but fortunately they can be made to pay their way by the sale of their product at highly remunerative prices. With the prestige which Wisconsin enjoys in dairying, it is absolutely necessary that we maintain at our Agricultural College as good facilities in our own specialty in Animal Husbandry as our neighboring colleges. Several of the agricultural colleges of the Mississippi valley now possesses superior facilities in this field for instruction and research to those which at present obtain with us. With this expansion of the dairy herd it will be necessary to increase the capacity of our dairy stable. The estimate for this improvement is approximately \$8,000.

Next year it will be necessary to make some provision for housing the experimental herd that is being developed by Professor Cole and the Animal Husbandry Department in inheritance and experimental breeding work. This can be done by reconstructing the west wing of the Experimental Breeding building so as to make it conform architecturally to the sheep barn, or the transfer of this experimental work to the Hill or the Eagle Heights farm. In either case provision will need to be made for proper quarters.

Nothing whatever has yet been done with the farm buildings on the Eagle Heights farm. When the University took over this land the farm was in a badly run-down condition. No fields were fenced and it was impossible to keep stock on the same because of the open fields and lack of buildings. We have now fenced several of the fields in a permanent manner, and with the construction of a common farm barn we could house and pasture a good deal of our young stock on this farm, which would help to restore its fertility, and relieve the congestion at the University barns. For this purpose there should be expended about \$4,000 for a forage and stock barn and other outbuildings like those which have been built at the Hill farm.

Some four years ago we made a modest start in poultry husbandry. Altogether, in our experimental and instructional plants we have expended for construction less than \$8,000. This department has proved to be very popular, and the request of the department for moderate additions to its resources for incubator

quarters, additional small houses, and adequate fencing, aggregating \$2,000, is well worthy of support.

Branch Experiment Station Buildings. The work at these stations has now been continued for several years and has so thoroughly commended itself to those sections of the state served by these agencies that the success of this movement is well assured. The pioneer work of establishing two of these stations on raw cut-over land has been accomplished so far at a comparatively small expense. The buildings erected have been only those absolutely necessary to house the force and make a start toward a farm. To begin this work the legislature made a specific appropriation of \$2,000 a year for three years. The balance necessary for the remainder of construction and equipment has come from the annual allotments from the Regents.

The work of these Branch Stations has now assumed such importance in the development of the state that adequate provision should be made to put these stations in a position to serve fully the needs of their communities in a way that will utilize as completely as may be, the resources of the same. Additional buildings for the housing of machinery, grain, and forage should be provided, water systems installed so that running water can be had in the house as well as in the barn, and additional equipment in the way of tools, machinery, and live stock secured. With our system of management in which in place of a superintendent on each station, the executive work is assigned to a member of the staff engaged in research work on the station, the overhead expense incurred is exceedingly small. In fact, the total expense for capital and operation in the case of these three stations is very much less than our neighboring states, such as Minnesota and Michigan, are putting into development work on their cut-over lands in the northern part of these states. Minnesota is spending from \$13,000 to \$15,000 annually, and has invested over \$100,000 already in buildings and equipment for their two-branch stations in the "cut-over" territory at Grand Rapids and Duluth.

There is no question but that the state as a whole is likely to profit in a large measure and more immediately through this developmental work than in almost any other way.

There are many problems that we have as yet been unable to consider at these Branch Stations, because of lack of facilities. Even in the case of animal production, it is impossible to solve

satisfactorily all problems here at Madison. Thus, for instance, feeding experiments, involving housing of stock, should be carried out on the soil types peculiar to these regions so as to secure data to show the most profitable methods of farm management.

To place these three branch stations on an adequate footing to enable thoroughly satisfactory work to be done, the regular operating budget should be materially increased. We spent for operation last year between eleven and twelve thousand dollars. This should be increased at least to fifteen thousand dollars annually. In addition to this, considerable new construction should be provided for that cannot well be taken from current funds. Additional barn and stable space is needed at Spooner and Ashland. No facilities for storage of unthreshed grains have yet been made. More land should be cleared. When this is done, fencing is needed. Also the equipment of all three branch stations as to tools, machinery, and stock should be enlarged. For such expenditures on capital account and new construction at least six to eight thousand dollars is needed for each year of the biennium. As this expenditure is wholly for state development and not student interests at the University, it would be entirely legitimate and preferable from some points of view, if a specific state appropriation were made for the further equipment and operation of these stations.

B. NECESSARY STAFF EXPANSION

No new departments have been organized during the past biennium, except that relating to the work in forestry, but efforts have been made to strengthen the lines of work already in operation. The rapid growth of the teaching work and the unusual demand for men trained in agriculture makes the problem of securing an experienced teaching staff increasingly difficult. Moreover, the expansion along extension lines, as stimulated by the Smith-Lever bill, has still further greatly intensified the demand for men. This phase of our work will undoubtedly continue to expand rapidly as the value and worth of this service becomes better known, but for the most part the necessary funds for the growth of the Extension Service will be met by federal appropriations available under the terms of the Smith-Lever bill.

It is impossible to forecast the teaching needs, except in part,

because the number of students is now increasing so rapidly, but considerable elasticity should be had in this direction to enable the departments to secure needed instructional help when occasion arises.

Plant Pathology. The rapid development of the plant pathological work along research lines will require the addition of a permanent staff member. So far this department has not engaged in the extension activities, but the demand for this service has been so insistent that in justice to the needs of the state, provision should also be made for an experienced instructor to undertake this work.

Horticulture. The very rapid growth of the potato work necessitates additional assistance for Professor Milward. The same situation obtains with reference to orchard extension work.

Experimental Breeding. Professor Cole has carried for several years both the teaching and experimental work in Experimental Breeding. This department has now reached a position where a permanent additional staff member should be supplied.

Economic Entomology. As yet no provision has been made for specific assistance for research work in Economic Entomology. The magnitude of the problems in this field and their practical importance should lead to an energetic development of the research field in this direction.

Forestry. While an excellent beginning has been made in the forestry work, through the development of the Ranger Course, yet the resignation of the department chairman, and the uncertainty as to the future forestry policy of this state, has made it impossible to organize this department as effectively as was hoped. When the decision of the Supreme Court is handed down this fall with reference to the problems now before that tribunal, it is to be hoped that the forestry policy of the state can be more definitely outlined and that definite plans can be made.

Home Economics. Much relief has been experienced by the Home Economics Department with the occupancy of their new building this fall, but as the completion of this structure has been delayed over a year and in this interim the department has continued its exceedingly rapid growth,* it is apparent that

* Enrollment for fall of 1914 shows an increase of almost 40 per cent over last year.

lieve that the time is now ripe for beginning this work on a wider basis. My recommendation would be, if the County Representative law is amended this winter, that it include provision for the appointment of at least two women representatives at large whose entire time can be given to field work on the problems of the farm home.

Farmers' Institutes. Among the changes to be made in the Farmers' Institutes with the inauguration of a new superintendent is the transfer of the demonstration work on the county and state farms which has heretofore been carried on by Professor Norgord, and the development of the educational trains.

In my last report I referred to the crop demonstration work which Professor Norgord has so successfully developed and recommended that he be given additional assistance. With his duties as Superintendent of Farmers' Institutes, and as manager of our Hill farms, it is impossible for him to give adequate personal attention to the organization of the demonstration work on these state and county farms. Nowhere are we able to get as valuable results for so little expenditure as is being done in this work. Each of these twenty odd centers throughout the state has become a well recognized location for the dissemination of not only improved seed stock but a demonstration point for better farm practices. This year the needs of the women have also been thoroughly met by the assignment of Professor Kelley from the Home Economics Department, who has attended with Professor Norgord a large number of his demonstration meetings. I heartily endorse the request of the Superintendent for an increase of \$2,500 in the funds available for the Farmers' Institutes work to enable this new line of summer effort to be carried on most effectively.

Branch Stations. Reference has already been made to the results that are being secured at these important centers in the northern and central portions of the state. The further constructional and equipment needs of the branch stations are there set forth. With the growing amount of general executive and extension activities which the departmental men, who act in an executive capacity, are obliged to meet, it would be highly advantageous to the research work of these stations, if we could locate staff members at some of these points who could devote their time uninterruptedly to the experimental work.

PRESENT FISCAL POLICY HAMPEES INVESTIGATION

In connection with our experimental work along practical feeding lines, it should be possible for the station to feed considerable numbers of live stock on a practical scale, in order to be able to advise the farmer on relative costs of production where different methods are employed. Under the present financial plan all moneys received from sale of farm products, other than milk, are required by law to be deposited in the State Treasury and cannot be used as a revolving fund for the continuance of such experiments. This restriction makes it difficult to continue any practical tests of this character, as the amounts involved for purchase of such stock make so large a draft on the operating budget. In this respect, we are therefore placed at a great disadvantage in comparison with other experiment stations of the Mississippi valley, all of which are able to use the proceeds arising from the sale of such stock for the continuance of similar experimental work. Efforts should be made this year to modify existing legislation so as to include such operations in our revolving funds, the same as milk and other dairy products.

H. L. RUSSELL,

Dean.

REPORT OF THE DIRECTOR OF THE COURSE IN HOME ECONOMICS

Dean H. L. Russell,
College of Agriculture.

Dear Sir: I have the pleasure to submit herewith the biennial report as Director of the Course in Home Economics.

The Department of Home Economics which has just completed its fifth year in the College of Agriculture has continued to grow steadily, as shown by the following table.

	Home Econ. Course	L. & S. Students	Graduate Students	Summer** School	Total
1910-1911	100	96	1	26	223
1911-1912	134	159*	1	78	372
1912-1913	168	96	0	114	378
1913-1914	205	200	8	170	578

* Elections in other colleges not restricted to juniors and seniors.

** Students electing one or more courses in Home Economics.

Educational Standards. The course of study has been developed along the educational theory that during the freshman and sophomore years the student should acquire a broad foundation in the use of English and at least one foreign language and the beginning courses in such sciences as seemed most nearly fundamental, namely:—chemistry, physics, physiology, bacteriology, and zoology. With this end in view there are but three courses in home economics offered during these years and but one elective, which the student is advised to take in either literature, economics, history, or biology.

This policy has made it possible for normal school graduates to enter and complete our course in five semesters, or two years and a summer session. It has also made it possible for students

who desire to attend for the first two years any of the smaller colleges in the state to do so without penalizing them too severely. This, in a measure, meets the desire of parents to place their daughters in a more cloistered environment during later adolescent years.

The entrance of students from other institutions on advanced credit standing, has grown so that today over fifteen other colleges and universities are contributing students who enter for junior and senior work. In a similar way we have graduate students who come desiring to gain advanced standing or a broader view of the teaching phases of the work.

There is a slowly increasing number of junior and senior Letters and Science students who elect from one to five courses in an endeavor to gain a broader foundation for their future work in the home, a few only, electing to take a teaching minor in home economics. To this end we offer throughout the year one course which has no science prerequisites and one course in applied design which is fundamental for all other applied design studies. With the beginning course in foods this gives a fair review of the home problems so that the future home keeper is not so seriously handicapped. In 1914 the senior course in Humanities was opened, on attendance standing, to seniors in Letters and Science. This gives a review of the laws of child development and care in home, school, and state in the belief that it may help in the training to a better standard in citizenship in the future. About fifty seniors from Letters and Science elected the course.

Majors in Home Economics. Up till the year 1913-14 the course in Home Economics offered no major other than the general one which endeavored to fit the graduate not only for life but for professional work in teaching either or both domestic science and domestic art in the high school or normal school, or food or textiles in the college courses in home economics.

In 1913-14 the course was broadened so that while the freshman and sophomore work is obligatory the student may, in the beginning of the junior year, elect a major in either food or textiles, thus giving a more intensive study to the work without limiting the scope of the electives in other colleges. It is the policy of the department to develop in the near future, majors in institutional management, dietetics, housing, hospital administration, vocational instruction, and to co-operate with the Depart-

ment of Sociology in offering minors to those equipping themselves for social service work.

Summer Session. In the Summer Session the courses offered and the instruction given while in part a duplicate of those in the collegiate year are adapted to the needs of teachers in grades and high schools. With our law demanding vocational instruction in the States there has come the demand for technical courses which will fit the teacher to meet more nearly the demand for trade methods in instruction. That in our millinery and dressmaking courses in the Summer Session we have anticipated this need is demonstrated by the fact that owing to lack of adequate laboratory space the mailing lists in 1913 and 1914 have been very long.

In the new building the clothing laboratories will accommodate but 192 a day. Even with this number we must provide at least four instructors to adequately handle these two courses in our Summer Session in 1915. While the demand in the Summer Session for courses in food and housing is not so great as for courses in clothing, yet that it is a steadily growing one is shown by an increase of nearly 40 per cent in 1914 over the numbers in 1913.

Up till now our instructional staff has met the Summer Session demands but beginning with 1915 we must secure instructors from without as the exhausting nature of the work demands more adequate vacational recuperation than the few weeks between summer session and work in the fall. The strain of continuous teaching from September to August is too great to be borne year after year.

The compensation in the summer session budget allowance will need to be greater as instructors of equal value cannot be secured at the salaries paid to our own teachers.

Extension Service. The department has, in co-operation with farmers' courses organized by the College of Agriculture, given a series of one-week extension schools during which lectures and demonstrations were given in home economics subjects. The demand for these was met in as far as possible through the work of the one woman extension worker, one-third of whose time we command, and such of the instructional staff as could be more easily spared. This has meant a distinct sacrifice in efficiency in both lines of work. In 1912-13 ten such courses were given and

in 1913-14, fifteen, that being all that could be carried under the old organization.

In 1913-14 three one-week schools in home economics were given, two in connection with the Farmers' Extension Schools and one in response to a call from the women of a village and farm community.

Every year between the two semesters in February a two-week course for women has been held at the University. That this meets a very insistent demand is shown by the fact that the attendance in 1914 was over 800.

The departmental staff, with the aid of one other lecturer has carried this work in addition to conducting the semester examinations, preparing reports and registering students for the second semester. As the number to do the work is small, it has meant that each home economics instructor must be on duty every minute of what to other members of the University faculty is a short vacation in which the work for the coming semester is organized. Even with additions to the extension staff under the Smith-Lever grant, this strain cannot be relieved as they are not permitted by law to work at the University.

This coming year there are to be two full-time extension workers, one one-third time, and two special lecturers, who will give such service as the Smith-Lever fund will support in addition to the fixed charges for the regular staff. This will enable the following lines of work to be developed throughout the state during the biennium:—extension courses in home economics; one week schools; extension clubs for young people, as sewing clubs; canning clubs; poultry clubs; pig clubs.

In affiliation with the Director of Farmers' Institutes, who provides two lecturers in home economics subjects, it is expected that the speakers in all of these lines of home economics extension work in the College of Agriculture may be so utilized that the expense of travel may be reduced to the minimum consistent with efficiency. To this end, one-fourth time of an executive clerk will be given to perfecting the distribution of speakers so that all demands may be met within the limits of the Agricultural and Home Economics extension staff.

Other lines of extension work of the department which have been met in part are the request for club study outlines, reference reading and club lectures, and the request for expert opinion through correspondence. This has added to the work

of administration and has borne most heavily on the Director as she must, with the limited number of instructors, do full teaching work in addition to executive duties.

Changes in Instructional Force. The growth of the work has necessitated an additional corps of instructors. While in 1911-12 the work was carried by six and one-half instructors, in 1913-14 the limited increase in teaching force, four instructors, made it impossible to do justice to the demands. Each instructor has worked more than full time, willingly, but if high grade work is continued, this overstrain must be relieved. For the year 1914-15 the increase in staff is only 19 per cent upon a calculated increase of students in 1913-14 of 42 per cent. For the coming year the increase in juniors and seniors is such that we can provide for them, but in 1915-16, judging by our present enrollment, we will have very much larger classes which we cannot handle with our present instructional staff.

The staff has lost in the biennium through resignation and marriage two instructors only. It has gained in the year 1913-14 one and two-thirds instructors, and one member of assistant professorial rank; in 1914-15 two instructors and two assistants; and, in pursuance of the policy followed in all other courses of maintaining a balance between instructors and those of professorial rank, the department staff has been increased and made stronger by one assistant professor in extension work under the Smith-Lever bill grant, and one associate professor who gives her full time to teaching in the advanced course in food.

In 1913, Professor Celestine Schmit, formerly of the Milwaukee Trades School was appointed assistant professor, in charge of vocational courses in home economic education.

In 1914, Professor Amy Louise Daniels, formerly chairman of the Department of Home Economics in the University of Missouri, was appointed to relieve the Director of some of the courses in nutrition and dietetics and to develop lines of research work in phases of home economics subjects.

In 1914, Professor Elizabeth B. Kelley, state supervisor of home economics education in Louisiana, was appointed assistant professor in charge of Agricultural Extension in Home Economics.

These additions to the staff will meet the needs for the year 1914-15 but in the following year there must be such increase in number of instructors as will adequately handle the beginning

classes and the possible development of a Short Course in Home Economics similar to that now offered in agricultural and dairying.

Research Work. If we are to take our place in the advancement of the home, we must provide opportunity for research work to be carried on by the staff and graduate students equipped for such investigation.

Testing or standardizing work, not alone to determine purity, but to determine hygienic and financial worth, has been done even under our present condition of lack of facilities.

That there is a growing demand for textile standardization; evaluation of food products as to food value and technique in their preparation and adequate comparative study of labor saving apparatus, is shown by letter and personal interviews. The department will gladly undertake this work when equipment and workers are available, thus doing for the homes, both urban and rural, what agriculture is doing for the farmer. With this should come the issuing of bulletins, popular and research, to meet the evergrowing demand from the housekeeper.

FUTURE WORK

Extension. We must in the near future plan to meet the demand for trained experts in home economics who may do for the farm home what is now being done by the County Agricultural representatives for the farmer and the farm boy. This is being done by other states and we are receiving calls for trained women to fill their positions.

A second need is for rural nurses who shall be available in the same way as the County Agricultural Representative. It may be possible to combine the training necessary in home economics, nursing, and medicine, thus having one home economics representative do both kinds of work.

The work of Dr. Dorothy Reed Mendenhall which proved so valuable last year in community institutes is to be continued in the rural one-week schools in home economics where the need of the knowledge of fundamental principles in preventive medicine in the care of the young is so vital.

Short Course in Home Economics. The request has been made by the men in the Short Course in Agriculture that there be

given a short course in homemaking for women so that their sisters and others could have the same privilege as the men enjoy.

In the last report the Dean of the College of Agriculture speaking of this need stated:—"It is hoped that it will be possible to organize this work when the new building for Home Economics is completed." If we are to assume this new work, more space, more instructors, and a larger budget will have to be provided.

Vocational Graduate Work in Home Economics. It is recognized by all thoughtful educators that we need more technical training for our teachers if they are to equip the child in the future to meet the industrial demands of life. At the same time we recognize the harm which comes from too early specialization in undergraduate work. Therefore to meet a very pressing demand has come the Summer Session courses. As this time is too short to accomplish the object, it has seemed wiser to the department staff to ask that an additional six months' or a year's study following graduation be offered to those who wish by intensive work on one or two technical subjects to become as efficient as the teachers trained for vocational work in France, Switzerland, Belgium, or Germany. At the completion of such training and on the recommendation of the staff, a teacher's certificate in vocational education may be granted.

Course in Fine Arts. Courses in technique require more detailed preliminary training in art and in design. The art courses offered in the University are negligible except as are found in applied design in Home Economics and in the Manual Training Department.

If we are to build up in this state a demand for a sensible and adequate solution of the clothing and housing problems, we must meet the situation by introducing courses in pure and applied art.

The department is suffering because of this lack and must put such courses in the College of Agriculture, if the College of Letters and Science where they belong cannot see its way clear to meet the demand.

A course in life drawing followed by applied art courses in costume design can be organized in the Course in Home Economics with but slight cost for equipment and for the present one additional instructor in applied design, thus allowing Miss Grady to develop the cast and life class work and later the costume design class, both of which are fundamental in costume study.

Housing and Equipping the Department. The department today is provided with the following rooms in the new Home Economics and University Extension building:—

- 1 Lecture room,
- 1 Class room,
- 2 Food laboratories,
- 2 Applied chemistry laboratories,
- 1 Dietetic laboratory with practice kitchen and dining room adjoining,
- 1 Weaving laboratory,
- A Textile laboratory,
- A Dressmaking laboratory,
- A House Architecture and House Decoration laboratory,
- An Art and Design laboratory,
- 1 Applied Arts laboratory.

In the Practice Cottage there are the following rooms with equipment:—

- Living room,
- Library,
- Dining room,
- Kitchen,
- Laundry,
- Store room,
- Furnace room,
- 3 Bed-rooms,
- 1 Bath.

Registering students in anywhere from two to four different home economics classes means that space in laboratories is at a premium. In lecture rooms we have been, and will be, very much handicapped as the one large lecture room is seated for 237 only, and the art and design apartments, where at present there is a lecture room, will in the next two years be required for laboratory classes. Aside from these there are two class rooms seating 24 each. Thus, what two years ago, when the new building should have been ready for occupancy, seemed adequate lecture room is now a limited space for even the present requirements. Unless there is a marked decrease in percentage gain, the Home Economics and University Extension building will not

meet the needs of the department for more than the coming biennium.

The Home Economics and University Extension departments are expanding rapidly; therefore there is already need for planning additional room which must be met either by building the new wing or constructing an entirely new building for the Extension Department. The latter solution is, in the opinion of your Director, the more advisable because it will meet the needs of both departments at a minimum of expense.

There is need of space and equipment in the department for smaller laboratories for advanced and research work in dietetics, textiles, household management, etc.

In the matter of office rooms the number is such that there are, with but three exceptions, from two to three instructors in each room. This crowding prevents such close supervision and friendship with students as is advisable for character development, as will be readily understood by anyone who realizes the handicap which the presence of a third person places upon young students who come for a conference.

The Practice Cottage which is equipped to provide a laboratory in which dietary and house management studies may be made more nearly practical, is now inadequate to meet the present demand. A dietary study should continue from five to seven days and yet the number of students is such that three days is all that each group may remain in residence. A practice suite should be placed in the Home Economics building to meet this demand.

The present laboratories will suffice for space for only two years more reckoning on the most conservative growth along old lines.

One of the new courses, Institutional Management, organized during the last two years, has proved so valuable, and the demand for practical laboratory work is so imperative, that having, in the opinion of the Steward of the University Commons, outgrown the opportunity for practice in connection with the central kitchen and dining rooms, it becomes necessary to plan some other place to be used as a practice laboratory. Five years ago the department was asked by a group of Short Course men to give some help in solving the living problem, at least in the way of wholesome food. It was promised then that in the future, if possi-

ble, a dining room would be planned much on the lines of the one in the Kansas Agricultural College where students in Institutional Management and in the short courses could plan, purchase, prepare, and serve the meals to the men taking the college work. In either the basement of the central part of the Home Economics and University Extension building or in the basement of the proposed new wing there could be organized such a dining room, service room, and kitchen which in size and equipment would meet the needs for the students in institutional management; and, if such a course is organized, the students in the short course in home economics could use it.

Your Director feels keenly that the need of increasing the staff, the housing and equipment of the department which has shown the largest growth of any in the University in the past five years merits the attention and the generosity of the state.

Respectfully submitted,

A. L. MARLATT,

Director, Course in Home Economics.

REPORT OF THE DEAN OF THE COLLEGE OF ENGINEERING

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: I herewith submit my report as Dean of the College of Engineering for the biennial period from 1912-14.

FACULTY

During the past two years there have been an unusual number of changes in the instructional staff, especially among the members of professorial rank. To the great regret of the faculty and alumni, C. F. Burgess, Professor of Chemical Engineering, who had been a teacher in the University for twenty-one years, resigned his professorship in 1913 in order to devote his entire time to professional engineering practice. The Department of Chemical Engineering has been placed in charge of Associate Professor O. L. Kowalke. W. D. Pence, Professor of Railway Engineering, was appointed in 1913 as a member of the board of engineers created by the Inter-state Commerce Commission to aid it in determining the value of the railway property of the United States. Professor Pence was granted leave of absence for the year 1913-14, and again for the year 1914-15, in the hope that at the expiration of this time he would decide to return to the University. While greatly regretting the absence of Professor Pence, the University may well feel honored by his selection for this important work. During the absence of Professor Pence, Assistant Professor L. F. Van Hagan has charge of the Railway Engineering Department. C. C. Thomas, Professor of Steam and Gas Engineering, resigned his position in the summer of 1913 to accept the professorship of the new Department of Mechanical

Engineering at Johns Hopkins University. Professor H. J. Thorkelson has been placed in charge of this department. F. T. Havard, Associate Professor of Metallurgy, who had been with us about four years, was taken from us by death in the spring of 1913. Although he had been connected with the college a comparatively short time his work had come to be highly valued and his loss is greatly felt. To fill this vacancy Richard S. McCaffery, formerly Professor of Mining Engineering at the University of Idaho, was appointed Professor of Metallurgy in February 1914. In 1912 Assistant Professor George J. Davis, Jr., of the Department of Hydraulic Engineering, resigned to accept the position of Dean of the Engineering Department at the University of Alabama. This place was filled by the appointment of Assistant Professor C. I. Corp, previously a member of the faculty of the University of Kansas. In 1913 Associate Professor Edward Bennett of the Electrical Engineering Department was promoted to a full professorship. In the same year Mr. R. C. Disque, instructor in electrical engineering, and Mr. J. B. Kommers, instructor in mechanics, were promoted to assistant professorships in these departments. In addition to the above mentioned changes, there have been resignations of a number of high grade instructors for the purpose of accepting positions elsewhere at larger salaries.

ATTENDANCE

The attendance in the College of Engineering for the past five years has been practically stationary, varying in this period from a maximum of 807 in 1910-11 to a minimum of 678 in 1912-13. In 1913-14 the attendance numbered 738. A condition of practically stationary attendance has been common in engineering schools throughout the country for the past few years. Some schools show a small decrease and others a small increase. Considering the very rapid increase in the number of engineering graduates, which took place during the ten years preceding 1908, and the lessened activity in new enterprises which has now existed for the past two or three years, it is to be expected that the attendance in engineering schools should show fairly stationary conditions. In some directions there have been new or increased demands for technical men. This is notably true in the

field of highway engineering, owing to the favorable legislation recently enacted in several states. This is an illustration of the way in which new lines of work are continually developing in which technically trained men are needed.

A noteworthy feature regarding new students entering during the past two years, is the increased number of those who enter with advanced standing, amounting now to about twenty-five per cent of the total. The number entering from normal schools of the state has become very considerable and will doubtless increase in the future.

INSTRUCTIONAL WORK

In 1912-13 the Engineering faculty took up at considerable length the question of revision of the curriculum, especially with regard to the number of hours required of freshmen and sophomores. As a result of this study some modifications were made in all of the courses. The principal changes were; (1) a reduction of the amount of work required in the first two years by from one to three hours per week; (2) an increase in the number of elective hours in the later years of most of the courses; and (3) an alternative program which permits those students who present a certain minimum of language preparation to omit the subject of foreign language, if they desire, and take other studies in its place. In order to gain this privilege, the student must present three units of one foreign language or four units of two or more foreign languages. It is believed that this arrangement will encourage the study of foreign languages in the high school and so enable the engineering course to be made more flexible. About forty per cent of the freshmen are now able to present the required amount of foreign language to permit them to take advantage of this arrangement.

The effect of the reduction in the amount of work can hardly be judged as yet, but statistics of the work of the freshman class of last year show a distinct improvement over the work of the year before.

Another change which was made at the same time was to discontinue the five-year arrangement, under which a student could receive a professional degree in five years, without having first taken a baccalaureate degree. Experience with this arrange-

ment led the faculty to the conclusion that if, in the one case, a five-year course is made liberal by the introduction of a large amount of general studies, the degree granted should not be the professional degree, but rather the B. S. degree, or perhaps both the A. B. and B. S. degrees; and that if, in the other case, the five-year course is made relatively technical, it is preferable to arrange it so that a student may get his B. S. degree at the end of the four years and then secure his professional degree as a graduate student. With an increased number of electives arranged in the various four-year courses, it would appear that there is now ample elasticity to meet all requirements.

The subject of highway engineering has recently assumed a position of much greater importance than formerly by reason of recently enacted legislation in this and neighboring states. Much of the highway work is now under state control so far as the engineering features are concerned, and this facilitates the organization of efficient engineering corps. These conditions have made it desirable to extend the courses in highway engineering in the University and to improve the laboratory equipment. Considerable expenditures have been made in this direction and the laboratory is now, in most respects, fairly satisfactory. Further expenditures, however, are needed.

In the Department of Topographical Engineering the subject of city surveying and street design has always received considerable attention. This work has recently been developed under Professor Smith into the broader and more important field of city planning, which is of very wide general interest. A large amount of valuable material on this subject was collected by Professor Smith from European sources during the first semester of 1913-14.

Instruction to students in agriculture and manual arts, which is given by this college, has increased greatly in the past two years and is adding considerably to the demands upon our shop facilities. Commencing this year, a short course in highway engineering will be given by this college to students in agriculture as an elective study.

RESEARCH WORK

The research work of the college during the last biennium has continued on about the same basis as during the previous period. Five University bulletins have been published from the Hydraulic Engineering Department on flow of water through orifices and channels and on pump and water wheel tests. This department is now engaged on a study of the efficiency of low lift pumps such as are used in cranberry marshes. The Department of Steam and Gas Engineering has published a bulletin on the subject "*Tar Forming Temperatures of American Coals*". Other important results of research work from various departments have been published elsewhere. From the Chemical Engineering Department several papers have been published in technical periodicals and society transactions, among them being papers on "*Iron Pipe used as Electrical Conduits*", "*A Study of the Annealing Processes for Malleable Castings*", "*A Microscopic Study of Electrolytic Iron*", "*Sources of Air in Gas Calorimetry*" and papers on the electrical deposition of iron and zinc. Two very important papers were presented by members of the faculty before the American Society of Mechanical Engineers, one on the subject of "*Friction of Shaft Bearings*" by Professors Thomas and Maurer, and one on "*The Measurement of the Flow of Air*" by Mr. Rowse, formerly an instructor here. The work on air measurement is being continued by the Steam and Gas Engineering Department, which department is also carrying on special work on the flow of steam, and friction materials for brakes. The Department of Mechanics is continuing the extensive study of concrete sand and gravel deposits of the state which was begun three years ago. This work is being utilized in a very practical way in the selection of materials at different points in the state. This department has also carried on for many years a series of tests on the permeability of concrete. The results were recently presented by Professor Withey before the Western Society of Engineers.

Several departments are co-operating with national societies and state organizations in their research work. The Department of Mechanics is co-operating with committees of the American Concrete Institute and the American Society for Testing Mate-

rials. The work for the latter committee consists in an exhaustive series of tests to determine the durability of clay and cement drain tile. The Department of Chemical Engineering is co-operating with the American Society for Testing Materials on the subject of paint. The Structural Engineering Department is also continuing its co-operation with the American Railway Engineering Association on the revision of bridge specifications. Several of the departments have rendered considerable service during the past biennium to the railroad and highway Commissions. In 1913 the Electrical Engineering Department, in co-operation with the railroad commission, organized a standards laboratory for the purpose of providing facilities for the testing of electrical instruments for various public utilities of the state. During the year 1913, 134 tests were made and in the first half of the year 1914 the number was 113. This service is paid for at rates agreed upon by the University and the railroad commission. This work is proving to be of very considerable service to the people of the state in helping to improve standards of service, and is also of considerable advantage to the University in the additional facilities provided for accurate standardization in University laboratory work.

THE ENGINEERING EXPERIMENT STATION

For several years this college has been granted a special fund of from \$4,000 to \$6,500 to assist in the conduct of research work in the various departments. Under this provision a very considerable amount of work has been accomplished, as has been duly reported. The question of a more definite organization of this work was discussed from time to time by the Engineering faculty, and, as a result of this, it was recommended to the Regents last February that this research work be organized under the title of "The Engineering Experiment Station". The recommendations were adopted by the Regents so that in the future the research work will be administered as an engineering experiment station.

The main advantages of such an organization would appear to be—

1. A clearer recognition on the part of the faculty of the

importance of this work, with a tendency to more regular and systematic provision for it.

2. Better correlation of the work among the different departments.

3. A distinctive name which will gradually give to the work a better standing and wider recognition throughout the state so that the facilities here available for testing and experimental work will more generally be appreciated, and thus render the laboratories more useful to the industrial interests of the state.

4. An organization better adapted to represent these activities in co-operation with similar organizations in other states.

Under the action of the Regents the staff of this experiment station consists of the Dean as Director and of the members of the instructional staff in the various departments of the College of Engineering, together with such fellows, scholars, and assistants as may be engaged in experimental or research work.

An organization of this kind has been in existence at the University of Illinois for nearly ten years and at three or four other institutions for a less period of time. It is probable that in the near future some equivalent organization will exist in nearly all of the state institutions which are supported in part by the federal grants. A national organization of land grant engineering colleges, formed two years ago, will do much to promote the work of such stations.

NEEDS OF THE COLLEGE

The most pressing needs of the college in the way of material facilities will be met by the construction of the new shop building, for which an appropriation was made by the last legislature. By a shifting of laboratories and the utilization of the old shop building for other purposes it is planned to give much needed additional space to the testing and the steam and gas engineering laboratories.

The appropriation of \$50,000 for a shop building, above referred to, is the very least for which it will be possible to construct a building for the shops of the College of Engineering. In equipping this building nearly all of the present shop equipment will be utilized as, with few exceptions, it is satisfactory and efficient. However, new and additional motor drives will need to be installed and several items of equipment purchased.

It is also very desirable that the new shop building should provide, under the same roof, adequate space for the shops of the growing Manual Arts Department. To provide for proper new equipment and for a more adequate building there should be available during the next two years an additional amount of not less than \$30,000.

I wish here to call attention to the question of more adequate salaries for the teaching staff. During the past ten years this college has lost many valuable men, largely because the general scale of salaries is insufficient. It is practically no longer possible to secure high grade experienced men from other institutions at the salaries we are able to pay; on the contrary we are losing men whom we ought to keep. The salary standard for the more important positions should be raised as soon as possible to at least \$4000, with corresponding increases for other positions, as I do not believe that an engineering school can be maintained on a high professional basis on a lower scale than this.

Respectfully submitted,

F. E. TURNEAURE,

Dean, College of Mechanics and Engineering.

REPORT OF THE DEAN OF THE LAW SCHOOL

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: I beg to submit the following report concerning the Law School for the biennial period ending June 30, 1914.

FACULTY

The following changes have occurred in the faculty:

Eldon R. James, appointed professor of law in June 1912, resigned June 1913 to accept a professorship in the University of Minnesota Law School.

Ernest G. Lorenzen appointed professor of law in April 1911 resigned in June 1914 to accept a professorship in the University of Minnesota Law School.

William U. Moore, appointed assistant professor in June 1908, professor of law in June 1911, resigned in June, 1914 to accept a professorship in the University of Chicago.

Oliver S. Rundell, instructor in law September 1910, retired in September 1912 to engage in practice.

The other members of the faculty during this period were H. S. Richards, Dean, and Professor of Law; Howard L. Smith, Burr W. Jones, E. A. Gilmore, professors of law; J. B. Sanborn, F. T. Boesel, lecturers in law; A. B. Hall, Associate Professor of Political Science, continued to offer courses in Administrative Law in the Law School.

In the Summer Session of 1912 Professors Gilmore, Lorenzen and Richards of the regular faculty offered courses. Courses were also given by Professor W. W. Cook, University of Chicago, Professor Albert Kales, Northwestern University Law School, and O. S. Rundell, Instructor in law.

During the Summer Session of 1913 courses were offered by Professors Gilmore, Lorenzen, and Smith of the regular faculty, and Professor Wm. E. Higgins, University of Kansas Law School, Professor James P. McBaine, University of Missouri Law School, and Oliver S. Rundell, Esq.

Henry W. Ballantine, A. B., LL. B., formerly Dean of the University of Montana Law School, was elected Professor of Law in 1913 to fill the position made vacant by the resignation of Professor James.

Oliver S. Rundell, LL. B. 1910, formerly instructor in law 1910-12, was elected assistant professor of law in August 1914, and Harold M. Wilkie, Esq., LL. B. 1912, instructor in law to take the places of Professors Lorenzen and Moore, resigned.

During the University year 1912-13 Dean H. S. Richards was absent on leave, the administrative work being in charge of Professor Gilmore.

During the University year 1913-14 Professor Gilmore was absent on leave.

REGISTRATION

The registration for the period was as follows:

1912-13	167
1913-14	169
Summer session 1912	63
Summer session 1913	74

The total registration for the biennium was 473, including summers of 1912 and 1913, which shows an increase over the preceding biennium of sixty-four. The total registration of special or unclassified students during this period was 53 as against 68 for the biennium of 1910-12, and 78 for the biennium of 1908-10.

The registration for the current year shows a still further falling off in this class of students. Two special students were graduated during the biennium on account of their unusual attainments.

The increase in registration though not large has been substantial, and gratifying, when the number of law schools in the vicinity of Madison is considered. The state universities and

private schools in adjoining states have made striking improvements in the last five years, practically all now requiring two years of college work as prerequisite to legal study. The teaching force of these schools has also been increased and strengthened. This improvement coupled with the growing tendency of students to attend the schools in the states in which they intend to practice has narrowed the field from which students are drawn. Taking the country as a whole, the number of professional students is declining, the larger schools showing a falling off or a stationary registration. The Universities of Minnesota and Michigan owing to advanced entrance requirements show a sharp decline in attendance. Indeed, this law school although a pioneer in higher entrance requirements has suffered less than any school in this respect. The number of students under instruction at this school is larger than the figures would indicate, since there are a large number of students registered in Letters and Science who carry less than ten hours of law school work, in consequence of which they are not counted as law students at all. Although it would be possible to accommodate at least one hundred more students without additional expense to the University, the present number of students is large enough for effective teaching, since it makes small sections possible. When a class exceeds thirty-five, individual participation in discussion decreases, and individual responsibility on the student's part noticeably decreases.

The interest on the part of the student and the intensiveness of the work has unquestionably increased during the biennium. Although the number of courses offered and the number of required class hours has increased the outside work of the students along legal lines has developed also.

In addition to the work of the practice court, a number of law clubs are maintained for the discussion of legal questions. A large organization of students devotes itself to the broader aspects of law, and its relation to social and economic problems. During the past year the history of various legal doctrines was traced in a series of papers, and the program of this year contemplates a study of current legal problems growing out of social and economic legislation.

The activities of the members of the faculty aside from their duties as teachers have been largely in connection with such legal bodies as Association of American Law Schools, Section on

Legal Education of the American Bar Association, Institute of Criminal Law and Criminology, and the State Bar Association. Various addresses have been given and articles written which are more particularly set forth in the departmental reports for 1912 and 1913.

Along the lines of teaching the effort is being made to individualize the instruction more by requiring special reports and briefs from the students and conferences concerning such reports. The members of the faculty have been active in connection with the Moot Court and Clubs, suggesting questions and advising with participants. Work of this character has been made possible by the provision made for student assistants, who have proved to be of great service. Courses have been authorized and will be given the coming year in briefmaking and office practice. The former course is designed primarily for first year students to familiarize them quickly with the material with which they must work, proper methods of using digests and other source books, and practice in compiling briefs. The course in office practice is intended for third year students and is designed to give the student a medium for applying in a concrete way his knowledge of substantive law by drawing such common documents as contracts, deeds, articles of business association, corporations and partnerships. This sort of work has been done before in connection with individual courses and included drawing deeds, examination of abstracts, etc. These courses in connection with the practice in pleading carried on in the courses in Code Pleading and Code Practice and the Practice Court give as complete a training in adjective law as can be done effectively in a law school. The faculty is convinced that admission to the bar should be preceded by a period of office study. At graduation the law student, however, efficiently trained he may be, is ignorant of many things pertaining to the art of his profession that renders him an unsafe adviser. No law requires such an apprenticeship in this state, though it is recognized as essential, since a majority of each year's class go into an office of an older lawyer before entering on practice independently. As the result of a rule adopted by the Regents in April 1914 at the request of the law faculty, all students entering after July 1, 1916 are required to serve an apprenticeship of six months in a law office before receiving a degree. The success of this provision will depend on the extent to which members of the bar of the state

are willing to co-operate with the law faculty in making it effective.

The law school should not, and does not, exist for the sole purpose of training practitioners, although that must of necessity be its main function. Young men preparing for business, public life, or service with commissions, should be encouraged to take a part of their training in law, since it is almost indispensable for those who hope to rise to any important post in public service. The law and legal institutions must be reckoned with in every line of public endeavor, and students should go into the subject with sufficient depth to gain a knowledge of legal principles, and to appreciate the legal aspect, and the legal point of view on public questions. One or two courses in public law will not give that knowledge or insight. The commissions prefer men in their service who have this knowledge and the habit of careful analysis that is the product of good legal instruction. Students of this type are not interested in adjective law, or in office experience, but under the present rules, such a man can not graduate in law without this training. By proper co-operation between the Law School and the Departments of Political Science, Economics, and History, a course of study for this class of students could be devised with considerable freedom of election, that would furnish an admirable course of training for public service, and this without any increase of expense to the University. The only possible modification of the present rules involved would be with reference to the major study—and even that is not likely. A degree should be given, no doubt, but since the degree in law admits to the bar, it would not be suitable for the course indicated. Courses to the extent of seventeen hours are now offered in public law, by the Law School. In addition to these, courses in comparative law should be installed, since a knowledge of the principles of continental law is essential to an intelligent study of institutions.

As recorded in the last biennial report, the faculty voted to substitute for the thesis, summaries in public and private law. During the biennium the courses have been given under the title of Jurisprudence, and History of Law, laying special emphasis on the historical origin of important legal doctrines, and their evolution in the face of business and social conditions.

These courses have proved very satisfactory and much more profitable to the average student than the thesis.

LIBRARY

The library is the laboratory of the school, and its use by the students in all departments of the University is steadily increasing. During the biennium about 2000 volumes have been added to the library. The amount available for the purchase of books has been sufficient to enable the purchase of continuations and some small additions that were lacking. Some serious gaps still remain, however, and considerable expenditures should be made over and above the annual appropriation to provide it. The lack of space has been a serious handicap, but this has been solved for some time to come by the authorization of a balcony in the main reading room.

NEEDS OF THE SCHOOL

During the past two years the Law School has lost the services of three experienced professors. These men have been called to neighboring law schools at salaries much in advance of the highest professional salaries prevailing here. In view of the demand for competent and experienced law teachers throughout the country, and the increased salaries being paid elsewhere, it is difficult to secure or retain the services of good men. This school has been fortunate in the men called to the faculty, but unhappily has been forced to give many of them up just when they had reached the full measure of their efficiency and usefulness to the school. The school can not go ahead as it should if it is forced to be a training school for teachers for other schools. It must be recognized that professional school salaries range much higher than those in colleges of arts due to the fact that the men are professional men, and to the great demand for competent teachers in law.

The principal need of the school in the way of equipment now that the library has been provided for, is a substitution of desks for the opera chairs that now form the seating equipment of the main lecture rooms of the law building. Opera chairs were perhaps suitable enough when the instruction was by lecture, but the present methods of instruction requires the student to

take full notes and to bring his books to class. It is impossible to do this work properly or comfortably with the present equipment. The students are constantly complaining of this handicap. Reference was made to this need in the biennial reports for 1908-10, and 1910-12.

Respectfully submitted,

H. S. RICHARDS,

Dean, Law School.

REPORT OF THE DEAN OF THE MEDICAL SCHOOL

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: I herewith submit my report as Dean of the Medical School for the biennial period closing June 30, 1914.

I. CHANGES IN FACULTY

Appointments: Paul F. Clark, associate professor of bacteriology, June, 1914; W. D. Stovall, bacteriologist, State Laboratory of Hygiene, January, 1914.

Promotions: H. C. Bradley, from assistant to associate professor of physiology, 1913; W. J. Meek, from assistant to associate professor of physiology, 1913; R. Van Valzah, from assistant to associate professor of clinical medicine, 1913; P. M. Dawson, instructor in physiology 1913-14, assistant professor, 1914.

Resignations: M. P. Ravenel, professor of bacteriology, 1907, and director of the State Laboratory of Hygiene, 1908, resigned June, 1914; L. Shumacher, instructor in clinical medicine, 1911-12, assistant professor, 1912-13, resigned, 1913.

Of these changes in the faculty the most important are associated with the discontinuance of the Department of Bacteriology as a separate department in the College of Letters and Science. Of the work hitherto offered, part is taken over by the Department of Bacteriology of the College of Agriculture and part by the Department of Pathology of the Medical School. To the latter falls the teaching of medical bacteriology and hygiene. This division followed the resignation, in the spring of 1914, of Dr. M. P. Ravenel who came to Wisconsin as professor of bacteriology in 1907 and who was appointed director of the state laboratory of hygiene in 1908. Under Dr. Ravenel's ac-

tive leadership the number of students taking bacteriology increased rapidly and the work of the state laboratory of hygiene was likewise markedly expanded. Dr. Ravenel has done much to promote the cause of public health in Wisconsin. He leaves Wisconsin to assume charge of the work in bacteriology and public health at the University of Missouri. The teaching of medical bacteriology and hygiene has been placed in charge of Dr. Paul F. Clark who has been appointed associate professor of medical bacteriology in the Department of Pathology.

Dr. Paul F. Clark was born in 1882, prepared in the public schools of Portland, Maine, took a Ph. B. degree at Brown University in 1904, an A. M. in 1905 and a Ph. D. in 1909. He was assistant in biology at Brown University from 1904-05, assistant in bacteriology from 1905-06, and assistant bacteriologist, Rhode Island State Board of Health, 1906-07. He was fellow in bacteriology at the Rockefeller Institute for Medical Research 1909-10, assistant 1910-12 and associate 1912-14. For six months during the year 1913-14 he was in the Pathological Department of the Johns Hopkins University.

He has published an intensive study of the diphtheria group of bacilli and has likewise studied intensively the dysentery group, but he is best known for his numerous papers on infantile paralysis.

Dean Bardeen has been appointed acting director of the State Laboratory of Hygiene. The immediate supervision of the work in this laboratory has been placed in charge of Dr. W. D. Stovall, bacteriologist, and E. J. Tully, chemist.

II. STUDENTS

There has been a steady increase in the number of students matriculated in the Medical School. Wisconsin continues to have considerably the largest enrollment of the medical schools which give merely the first two years of the medical course. The following table shows the number of students matriculated in the medical course for the years 1911-12, 12-13, 13-14, and 14-15.

TABLE I
Number of students matriculated in the Medical Course

	1911 12	1912 13	1913 14	1914 15
MEDICAL STUDENTS.....	60	67	82	94
First year.....	36	32	60	54
Second year.....	24	34	22	40
Men.....	54	61	75	89
Women.....	2	5	7	5
Residents.....	54	57	62	69
Non-residents.....	6	9	20	25
Graduates.....	9	12	16	15
Seniors.....	29	28	26	41
Juniors.....	22	26	40	36
PUBLIC HEALTH.....	2	1	2	2
Total.....	62	68	84	96

From this table it will be seen that the number of students matriculated in the medical course has increased 50 per cent in four years. The number of women enrolled remains essentially stationary. The number of non-resident students has increased faster than the number of resident students, but the latter constitute about three-fourths of the total number. In connection with the enrollment of non-resident students in the Medical School it is of interest to note that the tuition and incidental fees for the course are considerably higher than at other state universities, with the exception of California, and are but slightly exceeded at the more expensive endowed universities.* The number of graduate students enrolled in the medical course remains at about 15 per cent.

The number of students not enrolled in the medical course who take work in various departments of the Medical School is greater than the number of students matriculated in medicine. The largest of these courses is that in general physiology, now taken by over one hundred students. Next to this comes the course in embryology in the Department of Anatomy, taken by sixty-five students last year, most of these not matriculated in the Medical School. The course in the Department of Anatomy offered to students in physical education has increased during the past

* California, \$185; Colorado, \$75; Yale, \$200; Illinois, \$155; Rush, \$185; Northwestern, \$190; Indiana, \$100; Iowa, \$100; Tulane, \$195; Johns Hopkins, \$220; Harvard, \$220; Michigan, \$120; Minnesota, \$150; Missouri, \$40; Washington University, \$150; Columbia, \$250; Cornell, \$190; Pennsylvania, \$220; Texas, \$62; Wisconsin, \$170-\$180. Where the fees vary for the different years of the medical course they are averaged for the first two years.

three years from nine to twenty-nine students. In the Department of Pathology there will be offered during the coming year an elective course in hygiene which we hope to make attractive to a large number of students as a part of their general education.

With the exception of the summer of 1913 when a course in general physiology was offered in the Department of Physiology the Department of Anatomy is the only one in the Medical School which has offered courses during the Summer Session. These courses have been well attended. A considerable amount of scientific work has been done in all departments during the summer, and a few advanced workers have come here to take part in this work.

The course for public health officers, established in 1911-12, continues to attract a few students each year. The degree of Doctor of Public Health has been conferred on one student, now health officer at Kenosha, and another student, now district state health officer, has practically completed the requirements for this degree. There is every indication that there will be considerable public demand for well trained public health officers and that to meet this demand an increasing number of men will seek special training. Our facilities for giving this work have been increased by the recent changes in the teaching of medical bacteriology and by the changes in the State Laboratory of Hygiene. There is an increasing number of students who desire special work in the hygienic laboratory and the clinical laboratory in order to fit themselves for work either in public laboratories or for physicians.

Various members of the faculty of the Medical School have given courses for nurses at the training school at the Madison General Hospital.

III. SCIENTIFIC INVESTIGATION

There has been marked productive activity in all of the departments of the Medical School during the past two years. Without attempting to give the titles and places of publication of the various papers published, we shall here merely briefly indicate the chief fields of investigation in each department:

Anatomy: W. S. Miller, air spaces in lung of cat, trachealis muscle, several papers on visceral anatomy, biographical sketch

of Niels Stensen; C. R. Bardeen, development of the intestines, blood supply of the intestines, the voluntary musculature, topography of the "athlete heart"; D. Townsend, development of the membranes of the brain.

Clinical Medicine: L. Shumacher and W. S. Middleton, effects of athletic sports on the heart; R. Van Valzah, a study of the physical condition of students entering the university; F. C. Rinker and S. Morris, studies on goitre; J. S. Evans, focal infection, the clinical significance of lymphocytosis; K. J. Theige, the blood picture in acute infection of the upper respiratory tract.

Pathology: C. H. Bunting and A. P. Jones, intestinal obstruction; A. P. Jones, variation in thyroid colloid; A. L. Tatum, cretinism; C. H. Bunting and J. L. Yates, Hodgkins disease.

Pharmacology and Toxicology: A. S. Loevenhart, oxidation in the animal body; A. L. Tatum, oxidation of epinephrin; A. P. Jones and A. L. Tatum, thyroid colloid; J. A. E. Eyster and A. S. Loevenhart, perfusion of isolated organs; W. H. Brown and A. S. Loevenhart, effects of hematin on the circulation; A. S. Loevenhart and A. C. Kolls, a new respiratory chamber, blood formation in atmospheres low in oxygen.

Physiology: H. C. Bradley, enzyme action, anaphylaxis, uric acid determination, autolysis of organs; J. A. E. Eyster, effects of drugs on the electro-cardiogram; J. A. E. Eyster and W. J. Meek, origin and conduction of impulse in the isolated mammalian heart, effects of epinephrin on the heart, electro-cardiogram studies, effects of morphine on the heart; H. S. Gasser, M. S. Peterson, and W. J. Meek, muscular exercise and heart acceleration; George Peirce, esterase; L. M. Warfield; auscultatory method of determining blood pressure in man; Max Morse, amino-acid content of involuting larvae, action of thyroid substance in developing larvae, involution of organs; P. M. Dawson, effect of training on the circulatory system, nerve conduction.

IV. MEDICAL CARE OF STUDENT HEALTH

When this work was organized it appealed to many chiefly from the philanthropic or charitable standpoint, the furnishing of prompt care to students, who, because of lack of means, might otherwise unduely delay seeking medical advice. While this aspect of the work has its importance, it has seemed to those in

charge from the inauguration of the work much less important than some of its other aspects. Of these the scientific, the public health, and the educational are the most vital. The centralization of the medical care of a student community of five thousand individuals offers exceptional opportunities for the scientific study of various factors on the health. The medical examination given each student when he enters the University gives data of value in the study of hygienic conditions of childhood and youth since the bad or good effects of these pre-existing conditions are to be read in the physical condition of the student at the time of entrance. The effects of various factors on the health of the student after he enters college are to be determined to no small extent by such medical examinations as may be made from time to time during his college course as he comes for medical advice or treatment. Since the factors in both cases are complicated, only long experience and careful study of a large number of cases make possible deductions of value. Studies of this kind have been undertaken and various members of the clinical staff are beginning to make preliminary reports as outlined above in the section on scientific investigation.

Upon the results of scientific study of this kind may be based wise measures taken for the betterment of the general hygienic conditions under which the students work. It is likewise likely that data of value may be obtained useful along public health lines outside the student community.

Public health measures, however, are effective in a democratic community merely in proportion to public understanding and public support. The proper education of the individual in matters of personal hygiene necessarily involves a discussion of certain aspects of public hygiene. The average individual is in the most receptive attitude concerning personal and public hygiene when he is himself sick through defects in one or the other. The education side of the work of the medical staff, therefore, becomes of great importance as to the majority of students who seek medical care.

During the year 1912-13, the clinical building, made by erecting an addition to the Olin house on Langdon Street, proved to increase markedly the facilities for the medical care of student health from each of the aspects mentioned above. During the year 1913-14, increased facilities for the care of students at the Madison General Hospital and at a small isolation cottage

on Warren Street further increased these facilities. The latter, however, proved to be too small. During the coming year the Raymer house is to be utilized and should add greatly to the effectiveness of the work. The advantage of an isolation infirmary is illustrated by the comparison of two epidemics of measles which had a similar start among the short course agricultural students. In one, which occurred four years before the opening of the infirmary, seventy-five cases of the disease developed before the epidemic was stopped; in the other, during which cases were promptly isolated, only twenty-one cases occurred.

The total number of entrance medical examinations given in 1912 was 1,623; 1,131 men and 492 women. The total number of individuals consulting during the regular college year 1912-13 was 3,397; during the summer session of 1913, 423; during the year 1913-14, 3,685; during the summer session of 1914, 449. The total number of consultations during the year 1912-13 was 23,979; during the summer session of 1913, 1,102; during the year 1913-14, 30,899; and during the summer session of 1914, 1,881. The number of students in the student wards at the Madison General Hospital, from December 1913 to July 1914, was 229; the number of students at the isolation infirmary was 34.

V. THE UNIVERSITY CLINIC

There has been considerable demand on the part of persons not students at the University for medical examinations and consultation at the University Clinic. This demand has hitherto been met in an informal way by members of the staff who have rendered such services as they could along with their other duties. As a rule, their services have been given as a matter of accommodation, and no charge has been made for them. It has seemed best both to the members of the staff and to the faculty of the Medical School that such services as are rendered by members of the staff to those not students should be more formally organized, and that those who can afford to do so should pay a fee commensurate with those charged by private consultants for similar services. On the recommendation of the Executive Committee of the Medical School the Board of Regents has accordingly established the following regulations concerning services rendered by members of the clinical staff to persons not students of the University. It is the desire of the members of the clini-

cal staff in rendering such services as they can along these lines to work in co-operation with the patient's physician.

1. *Office Hours:* The Clinical Building will be open to patients other than students on Monday, Wednesday, and Friday mornings from 10 A. M. to 12 M. from November first to August first.

2. *Referment:* Any patient thus applying for medical consultation should, whenever practicable, bring a letter from the family physician stating the purpose of the consultation and giving such data as may be of value in the case.

3. *Fees for office consultations:* Appointment cards for office consultations are to be obtained from the clerk at the University Clinic. The fees shall be paid when the appointment card is received.

4. *Outside consultations:* Members of the clinical staff may attend a patient in consultation with the patient's family physician at hours which do not conflict with regular University duties. The fees for this service shall be such as ordinarily obtain, and shall be paid at the time of the consultation.

5. *Reduction of regular fees:* When recommended by the family physician, or other competent person, and approved by a member of the medical staff, the regular fees may be reduced or waived in case of patients financially unable to pay them. No fees shall be charged patients for whose care the University is financially liable, nor for personal services rendered members of the medical profession. Indigent persons may be examined and treated free of charge.

6. *Disposition of fees:* All fees collected for the services mentioned above shall be deposited at the Bursar's office.

7. *Restrictions and exceptions:* No patients other than students shall be examined at the Clinical Building at other hours than those specified in Sec. 1, except in case of special emergency. This rule, however, shall not apply to patients for whose care the University is financially liable, nor for patients studied for purely scientific or educational purposes, or in the interest of public health or charity. The use of the laboratory shall be limited to cases under clinical study by members of the clinical staff.

VI. STATE LABORATORY OF HYGIENE

(Laboratory of the State Board of Health)

The work of the State Laboratory of Hygiene has continued to expand rapidly during the past two years. The restricted quarters occupied by the laboratory have made it difficult to meet the demands made upon it. The additional laboratory space which has come from the transfer of Medical Bacteriology to Science Hall now offers welcome relief.

The number of routine examinations made during the past two years is as follows:

	July 1, 1912- July 1, 1913	July 1, 1913- July 1, 1914
Diphtheria.....	1,368	1,729
Typhoid.....	1,021	987
Sputum.....	2,556	3,122
Water.....	894	889
Sewage.....		347
Rabies.....	83	55
Miscellaneous.....	710	1,710
Total	6,632	8,839

Number of doses of anti-typhoid vaccine sent out, 13,585.

Number of physicians and health officers who have made more or less use of the laboratory, 1,814.

VII. BUILDINGS AND EQUIPMENT

The equipment of the various departments of the Medical School has always been good and compares favorably with that in other medical schools of A+grade. In buildings we are far behind most medical schools of good grade. The departments of the Medical School have occupied either previously unused attic space or space in buildings given up by departments which have moved into new buildings. With the exception of the addition to the Olin house used by the Department of Clinical Medicine, nothing has been built with special design for use by the departments of the Medical School. In spite of this handicap, teaching and research have gone on successfully, but with the increasing classes under greater and greater difficulties. The removal of the Departments of Zoology and Botany to the new biology building from Science Hall left space in the latter building which was given in part to the Department of Geology and in part to the Departments of Anatomy and Pathology of the

Medical School. The Department of Pathology moved down from the fourth floor of South Hall to the third and fourth floors of the south wing in Science Hall. The Department of Anatomy received as additional space a large room on the fourth floor of Science Hall and the old biological laboratory on the third floor. While the facilities for teaching and research in both departments were thus extended, neither department acquired wholly satisfactory quarters for its work. The recent transfer of medical bacteriology from South Hall to Science Hall has further complicated the satisfactory use of the available space there. The Departments of Pathology and Anatomy are, however, well off as compared with those of Physiology and Pharmacology. These departments are crowded in such a way in the Chemical Engineering building as to hamper both teaching and investigation. Immediate relief is needed. The Raymer house which is being fitted up as an infirmary will, in conjunction with the student wards at the General Hospital, offer fairly adequate quarters for the care of students when ill. To utilize this house to full advantage, however, somewhat extensive alterations are needed. An addition should be built in the near future. The growth in the number of students taking courses in clinical diagnosis has so overcrowded the present clinical building that an additional story or two are needed to provide adequate quarters for this work.

The State Laboratory of Hygiene, since the removal of Medical Bacteriology to Science Hall, has expanded so as to take in the whole of the fourth story of South Hall. The rooms have been remodeled and repainted and now provide excellent quarters for the work of the laboratory.

VIII. NEEDS

The most pressing need of the Medical School, at present, is for more space for the Departments of Physiology and Pharmacology. This need is a serious one since the crowded condition of the inadequate quarters in the Chemical Engineering building not only hampers work but is unhygienic and furthermore unsafe, since the building is not fireproof.

At the last session of the legislature these needs were recognized and \$200,000 was appropriated for the erection of a medical or a physics building. It was understood that if Physics were provided with a new building the space now occupied by

Physics in Science Hall could be utilized to offer relief to the Departments of Physiology and Pharmacology. The Board of Regents has decided upon the erection of a Physics building, as soon as funds are available, with the idea of transferring the Departments of Physiology and Pharmacology to Science Hall and thus, to a large extent, concentrating the teaching of the medical sciences in this building. It is therefore of great importance, not only to Physics but also to the Medical School, that the new Physics building be erected at the earliest possible time. When this building is completed and the transfer of Physiology and Pharmacology to Science Hall is made these departments will be afforded considerable relief, but the growth not only in the number of matriculated medical students but also in the number of students not matriculated in the Medical School who elect courses in the medical sciences makes it evident that it will be necessary in the very near future either to give additional room to the Medical School in Science Hall by providing for Geology elsewhere or to erect one or more buildings for the Medical School.

Next to this need for more space for Physiology and Pharmacology the most important immediate requirements of the Medical School are for an additional story or two to the present Clinical building and such remodelling of the Raymer house and additions as will make it possible to utilize it to its full capacity as a student infirmary.

In addition to these most immediate needs the time has come to consider seriously the development of the clinical part of the medical course. Medicine plays so important a part in modern civilization that it cannot be neglected with impunity by any state that aims at the highest things. Wisconsin needs a dynamic center of clinical medicine at the State University in order to maintain the progress already made in the basal sciences and to aid in further advances in the application of medical science to human needs. In the development of clinical work the aim should be to utilize to the utmost the resources of the state. While training in the elements of clinical medicine would have to be given at Madison, it would seem possible to organize a course whereby a large part of the clinical work might be obtained in institutions already existing or which might be developed in different parts of the state.

Respectfully submitted,

C. R. BARDEEN,
Dean, Medical School.

REPORT OF THE DEAN OF THE UNIVERSITY EXTENSION DIVISION

*President Charles R. Van Hise,
The University of Wisconsin,*

Dear Sir: I herewith submit the biennial report of University Extension for the period extending from July 1, 1912 to July 1, 1914.

POLICY

In the biennial report of University Extension covering the period from 1910-1912, it was shown that up to the end of that period, practically no departure had been made in the development of the Extension from the plans submitted to the Regents in 1908. The statement applies with equal truth to the past biennium. The growth which will be seen to have been rapid has been due to a consistent and progressive expansion of early activities, rather than to an introduction of new lines of service, that which seemed to be new having been, as a rule, merely added avenues for the application of work already under way.

Examples of vehicles for this wider application may be seen in the Community Institute and the several Bureaus, of Community Music, Health Propaganda, and Visual Instruction, described later in this report, all of recent creation. These activities, though independently serviceable, are primarily useful in opening the way wherever they go for practically every other manifestation of University Extension. Thus they are new forms, merely, and signs of normal growth implying no change of method or policy.

While it is recognized that a fixed, preconceived plan of University Extension would be harmful in tending to commit the work to a given course which in the light of changing conditions might prove disastrous to a greater or lesser degree, it is freely admitted that certain basic principles and methods are fundamental.

Among these, of primary importance is the requirement that the work shall be adaptable; that it shall inspire and lead rather than dictate; that though offering an opportunity for service from the outside, it shall cultivate in the individual or the organization the power of self-direction; that it shall increasingly justify itself in becoming the recognized instrument whereby the people shall be enabled to realize their highest possibilities both in material achievement and in social and civic betterment; and that, as the years pass, the work shall develop new methods that will reduce cost and effort and enhance efficiency.

GROWTH

A potent influence in Extension development is the growing sense of community inter-relations and the increasing number of effective organizations that are uniting neighborhoods in the interest of individual and community improvement. It is not too much to say that the time will come when University Extension should be able to reach and benefit through this machinery, either directly or indirectly, every man and woman, girl and boy, throughout the length and breadth of the state.

The rapid growth of University Extension (see tables) is due mainly to the fact that the demand for Extension service from all parts of the state has kept pace with the spread of knowledge of this service. It is an inherent element in the policy of University Extension to endeavor to create a demand where there is evident need, but as a rule no further effort is required to this end than to give definite information concerning the opportunities offered. District development and community organization are the agencies of this publicity. The situation is like that of the ball of snow rolled from the top of a hill; once started it is difficult to stop and so long as it rolls, retardation of its growth is impossible.

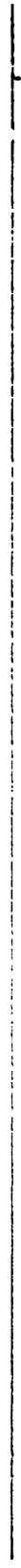
For the most effective service in covering the state the development of new district centers is important, but even without further districting and with no provision for expansion of the established departmental activities, the normal, unstimulated growth must inevitably be so great as to call for yearly increases of appropriation just to "mark time." If University Extension is justifiable at all, this growth must be recognized and its demands met; the response must be prompt and acceptable, or much of the value of the service be lost.

This normal increase of Extension service is little affected by the fact that it has been a settled policy of University Extension to turn over to local institutions any work it has established or aided, whenever and wherever it is possible to do so without detriment to the work. When the law was enacted creating vocational schools in all towns of 5000 or over in population, there were large numbers of working boys and girls, including apprentices, enrolled in Extension courses. As rapidly as possible these pupils were entered in the newly provided schools, Extension at the same time finding a new and important service in supplying special teachers and texts for the schools themselves. The Extension Department of Debating and Public Discussion supplies an example of a similar effort, in that it earnestly desires to place in the hands of local libraries the work of aiding debaters or speakers in their search for reference material. Every library in the state should and could do in a small way the things that are offered by this department, yet comparatively few of them are willing to give attention to this work sufficient to relieve the congestion occasioned by an over-demand that comes to University Extension. A line of this service, that relating to programs and bibliographies for the use of Women's Clubs, has been assumed by a State Department, the Travelling Library Commission, but the assistance from this source though of excellent quality is so inadequate in quantity as to afford little relief.

ORGANIZATION

The chart presented herewith shows that University Extension, consistently with its early establishment, comprises the following departments of work: Correspondence-Study, Instruction by Lectures, Debating and Public Discussion, and Welfare.





Each of these departments is in charge of a secretary who is responsible to the Dean of the Extension Division and through him to the President of the University and Board of Regents. Under the secretaries, the administration includes text writers, teachers, lecturers, assistants, and in the Department of Welfare, Chiefs of Bureaus. These officers, with the clerical force, form the central administrative body with headquarters at the University.

For the purpose of convenience in reaching every part of the state and the most favorable application of the work, local administration is provided through division of the state into districts, each with its superintendent and corps of assistants. The members of this force are similar to those at the central headquarters, with the exception of the Field Organizers, or publicity agents, who announce and explain the province of University Extension widely throughout the state.

In the Department of Correspondence-Study Instruction there are now employed 34 teachers and text writers on full time, 30 on part time, and 18 on a fee basis; in the Department of Instruction by Lectures there are 48 University men and groups who are employed occasionally, and 40 outside lecturers and entertainment companies whose services are offered through the department; in the Department of Debating and Public Discussion, there are 3 assistants on full time and one on half time; and in that of Welfare, four chiefs of the following Bureaus,—Municipal Reference, started in July, 1909; Health Instruction—not new work but organized and given a special head in February, 1913; Community Music, established in July, 1913; Visual Instruction, whose chief was appointed in January, 1914; and Press Bureau created in 1913. Fifty-seven clerks and stenographers are employed in this work now. Of these, 7 are in field offices and 5 are employed temporarily.

Six districts have been organized as follows, the city which gives its name to the district being in every case the seat of its headquarters:

1. Milwaukee, organized in March, 1909.
2. Oshkosh, organized in July, 1909.
3. La Crosse, organized in August, 1911.
4. Superior, organized in July, 1912.
5. Wausau, organized in August, 1912.
6. Eau Claire, organized in November, 1913.

In reviewing the developments of the last biennium, the work of the several departments, of the Bureaus, and of the districts will be discussed briefly.

DEPARTMENT OF CORRESPONDENCE-STUDY

This is the largest, the most comprehensive, and the most diversely useful of the Extension departments. It comprises the part of the work that carries to individuals the opportunity for self improvement by directed study without other limitations than the student's ability and therefore appeals to a tremendous student body, one that includes members with every possible degree of preparation and widely diversified interests. The problems are sociological almost as much as educational and method is even more important in Correspondence-Study instruction than in regular school training.

Professor William H. Lighty, Secretary, presents several very complete and accurate tabulations and graphs which are prepared from records of the work of his department. (See pages at end of report).

VOCATIONS OF CORRESPONDENCE-STUDY STUDENTS

These tables include an alphabetical list of the occupations of Correspondence-Study students, 317 in number, covering a range that includes members of the learned professions at one end, and the most humble forms of service at the other. By far the larger number of these students are adults, the average age being 26 or 27 years. Their self-selected and, in some measure, self-directed studies are generally undertaken in leisure hours in response to a recognized need for further education or a desire for greater efficiency and subsequent promotion. This tabulation alone presents eloquent testimony to the widespread recognition of the need for vocational education, and is peculiarly significant in pointing out possibilities for the developments of the future.

RATE OF GROWTH

The number of registrations for Correspondence-Study from 1906 up to the date of this report is 15,990. The fact that 40 per cent of this number, 6498, were taken in the last biennium is significant of the increasing usefulness of the work, despite

the fact that some courses for which there is a demand cannot at present be offered. The number of students active during the last year of the biennium was 7,662. (See Tables II and IV). The difference between registrants and active students is due to the fact that many of those who are actively engaged in courses of study in one year may have registered in a preceding year. Thus, the number of students enrolled or registered in 1913-1914 is only 3,053, while the number of active students during the same year is 7,662.

As illustration of the unbroken growth of this work, attention is called to the following figures. The registrations in 1910-1911 were 2,350; in 1911-1912, 2,898; in 1912-1913, 3,039; and in 1913-1914, 3,459. The active students in the same years increased as follows: 4,807; 6,047; 6,315; and 7,662.

These figures show an increase of over 25 per cent in active students for the last year of the last biennium over the last year of the preceding biennium and for the same years an increase of over 15 per cent in registrations.

SMALL ENROLLMENT OF WOMEN

Of the number of students enrolled in 1913-1914 (See Table II), there are 2,478 men and 577 women. In the two years of the biennium about 17 per cent only of the total registrants were women. Under another head there is some discussion of the need for a woman field organizer who would be able to convince women throughout the state that the University has much in its Correspondence-Study service for them. Additional courses in home economics and other subjects related specially to women's interests are in process of preparation and will soon be ready for use. A large percentage of the women now enrolled are teachers who enter upon courses of study to further fit themselves for their professional work.

In 1913-1914 the students enrolled for University credit numbered 420; of the total registrants, 1,955 pursued work entirely by mail while 1,100 were instructed in local classes.

A disparity in the average ages of the students in the first and second years of the biennium, the first year's average being about 26 and that of the second nearly 27, is accounted for by a change due to the removal of the younger students who at the beginning of the second year entered the local continuation and vocational schools.

DEGREE OF PREPARATION

The preparation of correspondence students covers a wide range. Out of the total registrations for the last year there were 52 who had not attained the sixth grade in their preparation; 51 had attained the sixth grade; 513 the eighth grade; 416 are graduates from high schools; 316 had entered college; and 243 are college graduates. In the previous year the range was between 35 below sixth grade and 318 college graduates.

INSTRUCTION IN CLASSES

It is somewhat more expensive to carry on Extension teaching by class instruction than by correspondence but experience has demonstrated that for certain kinds of work it is necessary for the pupil and instructor to meet. One hundred eighty-two classes have been held during the last biennium in 49 different cities upon 49 different subjects. (See tabulation at end of report.)

COURSES COMPLETED OR DROPPED

Five thousand seven hundred and one students have completed courses since the work began in 1906; (see table); 4,404 were dropped, a total of 1,297 who completed courses over the number dropped. All those who fail to complete work for which they are enrolled must be classed as dropped although of that number a large percentage have secured from the instruction what they sought and have discontinued the work on that account. Others through change of occupation or other circumstances were prevented from completing work well begun. Therefore, not all classified under the heading "Dropped" represent failure. The proportion of the students who complete courses is larger every year.

PUBLICATION OF TEXTS

Twelve texts, written by members of the instructional force of the Extension Division, have been published in book form; eleven by the McGraw-Hill Book Company and one by D. Appleton and Company. Other texts are nearly ready for the printer.

The University has every reason for gratification in the reception of University Extension texts throughout the country. The fact that at least thirty-six educational institutions (see list at end of report), among them the Massachusetts Institute of Technology, The University of Illinois, The University of Kansas, The University of Pittsburg, and The University of Minnesota, have adopted one or more of them is evidence of their recognized value.

If all of the Correspondence-Study texts were printed the cost of clerical assistance would be greatly reduced and the routine work of the department could be accomplished more expeditiously. But the task of preparing texts is necessarily slow and while the policy of testing before printing them guarantees excellence, it further retards the publication.

TRAINING OF INDUSTRIAL TEACHERS

In the application of the laws providing for Industrial Education in Wisconsin one of the main difficulties experienced has been to secure a sufficient number of teachers having the special equipment of experience and training essential to successful industrial instruction. A training course for skilled mechanics whose tastes and abilities lead them to aspire to become teachers was begun two years ago by Professors F. D. Crawshaw, Head of the Manual Arts Department in the College of Letters and Science at the University and K. G. Smith formerly District Representative of the Milwaukee District. During this time a search has been made for a suitable person to be placed at the head of this work and Mr. Wilson H. Henderson, formerly Superintendent of Night Schools and Director of Vocational Training, of Hammond, Indiana, was recently selected for this position. He has already established favorable relations with organizations interested in this development, and the present outlook for the work is promising. Arrangements have been made to afford opportunities for practice teaching to extension students in the Milwaukee schools.

This work has been carried on fairly well for over two years, a sufficient period of time to show its possibilities, by those whose first duty was in other directions. Under a management devoted exclusively to its development there is every reason to believe that it will be successful.

TEACHING STAFF

The number of teachers who write the texts and examine correspondence-study papers or conduct classes at the University is 23 on full time, 14 on part time, and 18 on a fee basis and 11 on full time and 16 on part time at the district centers. With the passing years this splendid force of men and women has gained steadily from experience and practice until a gratifying quality has been attained in their service. The esprit de corps of the members of the teaching staff, their enthusiasm for the work, and the pleasant relations that are maintained among them contribute to the high level of achievement that is reached.

INSTRUCTION BY CORRESPONDENCE-STUDY

The departmental lines of instruction tabulated and yearly registrations in each subject recorded (See Table V), show 33 subjects that have been offered between 1906 and 1914, the number of registrants in a single subject varying from 1 to 4,415. Engineering, Business, Mathematics, Drawing, and English each show over 1,000 registrants, the largest number, 4,415, being enrolled in the several departments of engineering and the next largest, 4,392, in business courses.

Examination of the reports of teachers in charge of these lines of instruction are of interest, as showing the nature of the work and methods of instruction.

BUSINESS COURSES

Associate Professor R. S. Butler, in charge of courses in Business Administration, offers courses of instruction with the primary purpose of increasing the efficiency of special classes of business workers and further courses of a more general nature, such as those intended for preparation for the work of accountant. Examples of the more intensive courses are bookkeeping and cost finding for printers, short courses in business law, and treatment of such subjects as retail advertising and farm bookkeeping.

The intention of the instruction is to appeal to the entire business community and to provide something of practical

value for everyone who is interested in improving his business efficiency. Stress is laid, furthermore, upon the importance of improving the standard of business ethics, of broadening and emphasizing the idea of service in business activities and by this means showing the relation between good business and good citizenship.

Mr. Butler's report shows that the students are keenly appreciative of the value of this work, many reporting promotions as a result of greater efficiency gained through their studies. Also, that employers endorse the work by opening their establishments to the organizer, by aiding in the formation of classes and by advertising Extension in their paid newspaper space.

COURSES IN ENGINEERING

Associate Professor C. M. Jansky has charge of the instruction in Electrical Engineering.

A marked improvement in the students enrolled for this work is shown in the records of the past biennium, and a satisfactory interest is disclosed by the fact that many students enroll for new courses immediately upon completing the old.

Mr. Jansky has adopted methods during this period that have met with conspicuous success. For example, for the teaching of Elementary Magnetism and Electricity a course is developed experimentally, 44 simple experiments being performed by the student who thus gains immediate practical acquaintance with electric and magnetic phenomena. By questions and discussion he is helped to interpretations and applications. For these experiments the department provides 50 sets of apparatus.

Ground has been gained in the past biennium in appreciation on the part of the employer of the fact that correspondence courses in Engineering are useful not only as they increase the efficiency of the employe in his labor, but also as a means of gaining insight into his character and ways of thinking. Many corporations now encourage their employes to enroll in courses of study and some help in defraying the costs.

As an instance of co-operative activity on the part of the employer, the following proposition was made in the past year by a Milwaukee firm. "Each person desiring to enter the course

will sign an order upon the company to deduct a definite amount each month during the period covered by the course. Students leaving the service of the company shall authorize the company to deduct any amounts due the University Extension Division from their wages. At the close of the course, the company will refund a certain amount to the student, if his final standing in percentage is above 70, upon the following basis:

"To the student receiving a standing of 95 per cent to 100 per cent the company will refund the entire cost of the course of \$6.00.

"For grade of

90 per cent to 95 per cent a refund of \$5.00.

85 per cent to 90 per cent a refund of 4.00.

80 per cent to 85 per cent a refund of 3.00.

75 per cent to 80 per cent a refund of 2.00.

70 per cent to 75 per cent a refund of 1.00."

Twenty-five men enrolled under these conditions; fifteen of them completed the course, and the results were so satisfactory as to lead to the renewal of the proposal for other courses.

Associate Professor E. B. Norris, in charge of the Correspondence-Study instruction in Mechanical Engineering points to a decided change in the nature of his work, due to the development of the state system of industrial education. The statistics for the past biennium show a decrease of 150 students in the industrial courses and an increase of 400 students in Mechanical Engineering.

During the past two years a number of cases of increased earnings and promotions have been reported, several former students having taken important positions in the industrial world. Mr Norris makes the following comment upon some of the practical returns to be gained through courses of study in this department. "A conservative estimate", he says, "of an increase of wages of five cents an hour for just the students who have completed courses in Shop Mathematics alone would place the increase in their earnings at over \$50,000 per year. In one large city of the state a campaign of instruction to the firemen in the principles of combustion has resulted in savings to the industries in fuel consumed and to the community as a

whole in the economic saving due to the reduction in smoke. In one plant the fuel saving is estimated at \$2,250 a year. The mayor of the city testifies that the smoke nuisance has been greatly reduced, in fact that none of the plants which sent their employes to this class are now producing an objectionable amount of smoke."

Associate Professor G. A. Hool is in charge of the courses in Structural Engineering.

The most successful courses taught in this department are those in "The Elements of Structures" and "Reinforced Concrete Construction." The excellent results obtained by these courses are due in some measure to the fact that the manuscript is in printed form and that for this permanent form it has been necessary to give unusual attention to finishing them in the best possible shape.

Mr. Hool is giving a large part of his time to the preparation of texts in Civil Engineering adapted to use in Correspondence-Study instruction. The volumes issued up to the present time have met with an instant recognition and are unique in their comprehensive and detailed treatment of the subject. These texts, though published quite recently and for the purposes of our own work, have been adopted in thirty-six institutions in this and other countries.

EDUCATION AND ENGLISH

The correspondence courses in Education, prepared by members of the University instructional staff, with the exception of that in Educational Psychology, have recently been placed in charge of Mrs. E. E. Hoyt. Heretofore, this work has been given by individual instructors working on the fee basis.

The enrollments in the courses in English, in charge of Assistant Professor Arthur Beatty, have increased in number 100 per cent over those of the preceding biennium.

Among the courses given in this department during 1912-1914 are the following: Ten lectures in practical English, developed into a course; a course of seven lectures in Shakespeare, with and without University credit; a course of ten lectures on Contemporary English Literature (taken by 72 students of whom 6 received university credit); in absentia work

for the degree of Master of Arts, with courses for 1913-1914 in Carlyle, the Age of Dryden and Ruskin, and for 1914-1915 in courses in Hamlet, King Lear, and The Relations of Byron and Shelley.

The department offers seventeen courses in English of college grade. In these courses there were during the last biennium 284 active students. It also offers eleven English courses not of University grade. In these there were 211 active students.

GERMAN

Mrs. K. W. Jameson was given tentative charge of the instruction in German upon the death of Dr. E. Reinhard, which occurred during this biennium. On September 1, 1914, Miss A. B. Ernst took charge of this work.

German ranks in the second group of correspondence-study courses from the point of view of numbers enrolled. Contrary to the general opinion, it is the experience that languages are successfully taught by correspondence. Mrs. Jameson explains the devices by which the difficulties of the method are overcome.

"The arrangement of the work must be such that when the assignment has been written the student has unconsciously mastered the points intended to be taught. This can very easily be done in language work by resorting to various devices, for example, in the beginners' course the student is required to transcribe a story in phonetic characters, then to rewrite the story, answer questions based upon the story, and then rewrite the story in different tenses, etc. Any objection made to teaching German by correspondence comes from persons who have never had any experience in this line. As a general rule, students do not stop with one course, but many have taken as many as four because they claim that they receive more thorough drill and do more careful work in this manner than in residence."

HISTORY

Associate Professor W. J. Chase, who divides his time equally between the College of Letters and Science and The University Extension Division, has charge of the work in His-

tory. His report, which follows, is evidence of how thoroughly up-to-date and progressive the instruction must be made, even in Ancient History.

“Although through the comment that the instructor can make upon the student’s lesson papers, much can be successfully done to keep the lesson material abreast with historical scholarship, yet periodically there accumulate reasons for a thorough revision of the course. Experience in the work reveals ways of presenting material to the student which promise more advantage to him in stimulating interest and directing effort; it becomes imperative that new reference material or new textbooks supplant or supplement the old; and new conclusions of the historian must be given their proper place in the assignment material. Such changes as these have been embodied in the revision of History 20 which carries ancient history to the time of Rome’s acquisition of the Hellenic areas of the Eastern Mediterranean. A new course, History 21, has just been completed to cover the period of Roman History through both republic and empire and thus to fill the gap heretofore existing in our credit courses between Greek History and Medieval History.

For Club Study:

Oriental and Greek History,

Egyptian History, Ancient, Medieval, and Modern.

French History, a comprehensive outline designed for three years’ consecutive work.

French History, Art and Literature, covering in 15 assignments the period from Louis XIV’s time to the present.

Medieval History, covering in 12 assignments the principal institutional features of the period between the fall of the Roman Empire and the protestant reformation.

“Of this list the 21 assignments of Oriental and Greek History have just been finished, and an equivalent number in Roman History is planned for and begun. The course in French History, Art, and Literature has been prepared with the co-operation of Mr. Galland of the Department of Romance Languages. All of these club courses were made in response to definite calls for them from women’s clubs, and it is believed that they are of such a character as to be in continual demand.

"The plans of the Department of History look to the extension of its courses for credit until all the elementary courses in history given to residence students of the University shall be offered to correspondence students. Very much, too, is yet to be done in the fields of club study work and in co-operation with the Department of Visual Instruction for the public schools of the state."

LATIN AND GREEK

In Latin and Greek Miss A. M. Pitman, Assistant Professor, reports the number of students in the past biennium as double that of the preceding biennium; also an increasing number of residence students enrolled for summer study who take this vacation work in order to accumulate credits needed to fill out their records.

The courses offered are correlated with the corresponding courses in residence and as is true of all work for credit, must satisfy the exactions of residence teachers.

Miss Pitman is successful in establishing personal relations with students enrolled in her work, not always confining her helpfulness to the subject matter of the lesson alone. "The hope is," Miss Pitman writes, "that each corrected paper will interest the student beyond the extent of the lesson and will strengthen his ambition. The fulfillment of this purpose is the chief aim of the department."

MATHEMATICS

The work of Assistant Professor H. T. Burgess, in charge of the Correspondence-Study courses in Mathematics, supplies a further illustration of the necessity for constant change and adaption even in so definite a subject as mathematics in order to keep the instruction abreast of modern methods of work and progress of applications. He reports that the fact that the residence Department of Mathematics has recently reorganized the mathematical work in the Engineering courses has made it necessary to reorganize the work of the Correspondence Department and write new courses for all credit work.

The preparatory courses also showed need of revision and several of them have been entirely rewritten. The introduc-

tion of graduate courses has been found to require but little time in their preparation and has opened a large field of usefulness for the work of the department.

During the past year this department has placed all courses for credit on the same basis as the corresponding residence courses as far as possible.

POLITICAL ECONOMY

Political Economy, with an enrollment of nearly 700, leads the second group of Correspondence-Study courses, as ranked by numbers. In this work Mr. R. S. Trent succeeded Dr. P. H. Neystrom at the beginning of the second year of the biennium, hence Mr. Trent's report compares the work of months rather than of years of biennial periods. He finds the average number of assignments corrected per month for the year is nearly twice the number corrected during the first month of the year. It should be noted, however, that as certain months show greater activity than others in this work, Mr. Trent's computations may be exact only approximately.

In the latter part of the year evening classes in Political Economy were undertaken for the first time. In La Crosse and Madison groups were organized for the particular purpose of studying the Federal Reserve Act, which had been passed the preceding December. The work proved so successful that the department is encouraged to make greater effort to place before the busy man of business some scientific analysis of the principles upon which his activities rest.

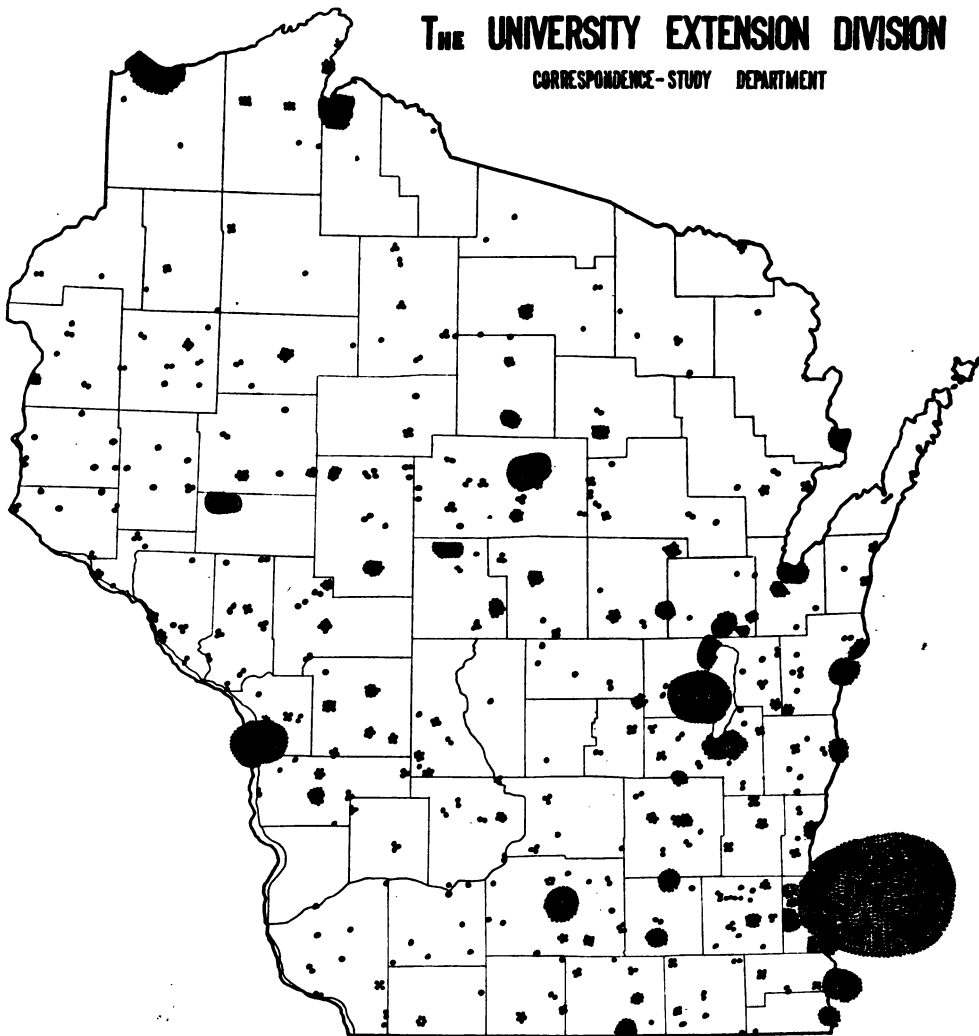
SOCIOLOGY AND POLITICAL SCIENCE

Associate Professor J. L. Gillin, Secretary of the Department of Welfare, offers four Correspondence-Study courses in sociology for credit or not as elected by the student. He recommends the provision of several short courses also that would be of use to social workers.

Assistant Professor F. H. MacGregor, Chief of the Municipal Reference Bureau, offers regular courses of correspondence instruction in political science and in addition to these a guided Club Study Outline Course on Citizenship and Government, based on the volumes of the Woman Citizens' Library as texts

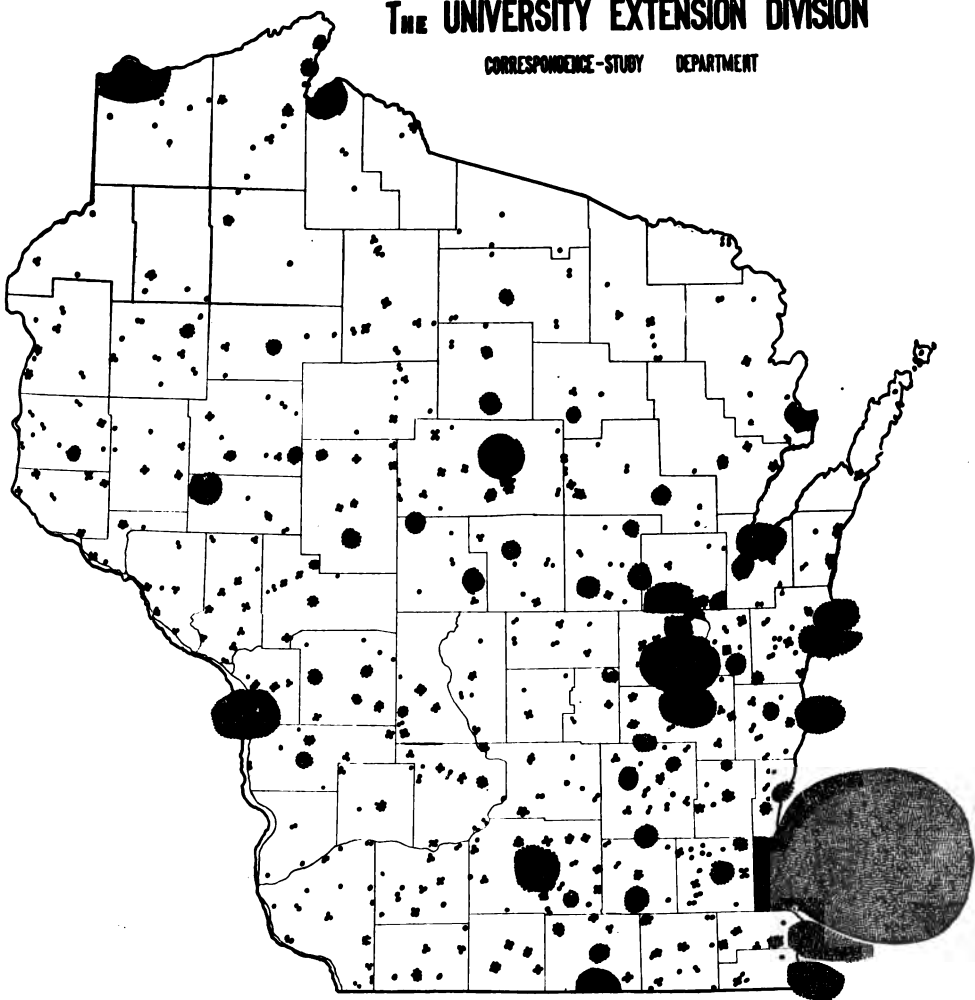
THE UNIVERSITY EXTENSION DIVISION

CORRESPONDENCE - STUDY DEPARTMENT

**STUDENTS ACTIVE JUNE 30, 1914**

THE UNIVERSITY EXTENSION DIVISION

CORRESPONDENCE-STUDY DEPARTMENT



TOTAL STUDENTS ENROLLED TO DATE.— OCTOBER 30, 1906, TO JUNE 30, 1914

and designed to serve for a year's club study. The latter course consists of twenty-four outlines, each outline suitable for one meeting.

DEPARTMENT OF DEBATING AND PUBLIC DISCUSSION

Under the efficient and indefatigable management of Miss Almere L. Scott, the Department of Debating and Public Discussion is expanding its field of activity to keep pace with or even exceed the promise of its earlier years. The work, established on broad lines of constructive helpfulness by Wisconsin's honored pioneer in University Extension, the late Mr. Frank A. Hutchins, is essentially a development of library service, partaking of the nature of the traveling library in its availability to every part of the state, but making its appeal to the individual or groups of individuals rather than to the community.

The work is divided into three distinct phases, bulletin publication, loan package library service, and specific information.

BULLETINS

During the past year five bulletins have been published and others have been revised and reprinted. "School Literary Societies," the fifth of the series of the basic bulletins, is proving particularly helpful in directing the careful consideration of controverted public questions by encouraging the organization of literary societies, in suggesting methods to institute and conduct such societies by outlining a plan for elementary research and clipping-bureau, and by supplying a list of worth-while questions stated for debate.

This bulletin has been combined with four other fundamental debating aids and has been issued as the "Wisconsin Extension Manual of Debate." A library edition of this Manual is the consummation of a long cherished plan of Mr. Hutchins to make these papers available to Wisconsin youths in permanent form. The edition came from the press but a few days after his death and, therefore, represents a last though modest memorial to a mighty inspirer of men.

***Frank Avery Hutchins**

Founder and First Secretary of

The Wisconsin Free Library Commission

and of

The Department of Debating and Public Discussion

The University Extension Division

The University of Wisconsin

Debating bulletins were issued on three of the important proposed constitutional amendments—Municipal Home Rule for Cities, Initiative and Referendum, Recall of Public Officials—submitted to the voters of this state in the fall of 1914. Each publication contained the text of the proposed amendment, in addition to the usual historical statement, brief arguments, and selected classified bibliography.

A bulletin, "Shall We Increase our Army and Navy," is a departure from the customary plan. It was prepared specifically to meet the needs of the social centers and civic clubs. It is comprised of papers by P. G. Wrightson, First Lieutenant, United States Army, Commandant and Professor of Military Science and Tactics of The University of Wisconsin, and Chester Lloyd Jones, Secretary of the Wisconsin Peace Society, and Associate Professor of Political Science at The University of Wisconsin.

During the biennial period 20,100 bulletins have been distributed in over fifty states and foreign countries. These aids are sent to citizens of Wisconsin upon application, without charge, and are mailed to addresses outside of this state upon the receipt of the list price.

SPECIFIC INFORMATION

A second phase of the work is the response to inquiries for specific information. Owing to the organization, equipment, and resources the department is fitted to supply this information. The task often involves a careful research in the large and excellent libraries in the city, a personal interview with members of the faculty, state departments, or some one whose advice may be termed expert. A record is made of the results of such research for further use.

* Deceased January 25, 1914.

PACKAGE LIBRARY SERVICE

The third feature of the work is the "loan package library." The department works to meet the needs of an organization or an interested citizen desiring assistance in study of a given subject by supplying reference lists or a package of the best and most recent available material, whether it be a book, a type-written excerpt, a pamphlet, or mounted or office bound clippings.

During the past year the department lent 3,741 package libraries, comprising practically 149,640 selected classified articles, bearing on 1,460 subjects. The packages were utilized in 405 different communities in the state, often by an entire club or class in an educational institution.

During the past year 1,045 packages were used by 398 organizations, 2,424 in 422 educational institutions, 272 in 143 localities for other specific purposes, including official investigations, preparation of articles for publication or of public addresses, correspondence-study, business development, library reference, community welfare, and self-improvement.

One feature of this work which has developed noticeably is the aid given to affiliated citizens. The increase in the number of packages sent to elementary and rural schools is also encouraging. Many of these inquiries come from localities which do not have a public library.

The data of the loan package library service for the past two years on the most popular subjects is indicative, in a measure, of the changes in public interest.

Subjects	1913-1914	1912-1913
1. Woman Suffrage	143	133
2. Immigration (excluding Japanese and Chinese).....	120	78
3. Home Economics & Domestic Science (excluding Nutrition)	70	24
4. Panama Canal (Including Panama).....	69	36
5. Minimum Wage	64	17
6. Commission Government for Cities.....	60	48
7. Mexican War (Including intervention by United States)....	53	0
8. Conservation	51	42
9. Government Ownership of Railroads (Including Alaska)...	48	38

An encouraging feature in the development of the work is the increase in the number of requests for packages direct from librarians. This co-operation is earnestly sought and whenever

feasible the department responds to requests from individuals by sending the material needed through the library of the community of which the applicant is a member.

Of the 170 libraries in the state, 35 solicited the package service in 1912-1913 and 65 in 1913-1914, while 81 in the first year and 102 in the second became agents in the distribution of packages. The number of packages asked for by libraries in the first year was 119, in the second year 372, an increase of 213 per cent. This co-operation is significant indicating that the local resources have been utilized, thus avoiding unnecessary duplication and expense.

Reorganization of the work of the Division, has given to the Department of Debating and Public Discussion the gathering of a large amount of the informational material needed by the different Bureaus of the Welfare Department, a change which adds considerably to its work.

The space needed for this work may be appreciated when it is recognized that the department has in its possession as working material 3,150 package libraries, material classified for 3,000 new libraries, and 16,800 magazines and periodicals which must be readily available for instant use. It is not possible in our new building to give nearly as much space as is needed, much less that which is desirable. In fact, although considerable room is now used in University Hall, the time will soon come when either the work must be curtailed or additional room provided.

DEPARTMENT OF INSTRUCTION BY LECTURES

Mr. J. J. Pettijohn, former Secretary of the Lecture Department, resigned July 15, 1913. Mr. Paul F. Voelker was elected his successor, and took charge of the work September 1, 1913.

The growth of the work during this biennium (see chart at end of report) is shown in the following tabulation of engagements:

In 1912-1913	874
In 1913-1914	1,189
Total attendance estimated for 1912-1913	156,100
For 1913-1914	214,650

About 40 members of the University faculty contributed to these entertainments, this number including individuals and groups. Of affiliated or outside entertainments placed by the department there were 30 individuals and 12 companies.

Strict care is exercised by the department in the selection of

lecturers and other entertainers to insure a quality that is worthy of the University, while at the same time it is recognized that entertainments must be characterized by certain elements of popularity in order to appeal to and benefit large numbers of people. This is community work and must cater not to individuals or classes, but to communities as they are made up of many individuals and many classes. The influences set in motion by work of this nature are far reaching and powerful.

There has been some criticism of the establishment by the University of what might be termed a Lyceum Bureau, but apparently the sentiment throughout the state is overwhelmingly in favor of it. There can be no doubt of its value for small or rural communities, where, except for the University Extension service, the high cost of the better entertainment courses is prohibitive.

The University is in a position to save an organization desiring a program or course of entertainments from 20 per cent to 50 per cent of the usual cost of such service. This possible saving is due to several facts, first among them, that the University does not desire to make a profit. Furthermore, there is no risk assumed and no money invested on which interest must be earned. The district extension representatives make the local arrangements and save the employment of special agents, and the routing is carefully arranged to make the travelling expenses as low as possible.

At the same time the financial summary shows that while the amount of service performed by the department is increasing, the actual cost of conducting the work is decreasing.

THE DEPARTMENT OF WELFARE

The Department of Welfare under the guidance of its Secretary, Professor J. L. Gillin, has developed a strong field of usefulness in community betterment. With a central method of work by means of institutes, conferences, and exhibits, it is aided and enriched by the service of a number of bureaus, all of which direct their activities to various phases of community interest.

The work of the Secretary is directly concerned with Social Service propaganda. In conducting institutes and conferences of several days' duration, the citizens of a community are afforded the opportunity to go to school for a little while with lessons either in some specific subjects chosen on account of the community needs, or with a wide range of instruction adapted to the

more varied problems of the larger towns or cities. Exhibits are similarly directed to definite phases of betterment, as for instance, health education, or to wider fields, as in the Child Welfare Exhibits which include many aspects of the social and educational problems that affect even the most favored classes of children.

A feature in the successful application of this work is a careful survey preliminary to the determination of the subjects to be included in the program of the institute or conference. By this means, the service given is made to apply directly to the special needs of the community addressed. The aim of the institute worker is to be clear and practical and to adapt his message to the popular understanding. He realizes that in order to gain the respect of the keen and intelligent men and women who form the backbone of the community audience, he must prove that he is thoroughly master of his subject.

The possibilities of usefulness in this department are very great and worthy of careful examination. The statistical reports of the work show large numbers of persons reached through its activities. Its lectures, classes, and institutes are of such a nature as to appeal to all sorts and conditions of folk. Statistics may mean little or much, but the testimony of those who have felt the power of the impulse that has come to them through the community work may be depended upon to measure its worth.

Professor Gillin, who gives but little over one-half of his time to Extension duties, has covered the following ground in the biennium:

1. A Social Service Institute, the second of its kind conducted by the Extension Division, continuing through a period of six weeks, and including two lines of study, the relief of poverty, and problems arising in connection with the adolescent child. A request for a third institute of this nature was not met on account of financial difficulties.

2. A tour of six weeks arranged for a Comprehensive Child Welfare Exhibit made by the American Association for the Study and Prevention of Infant Mortality, secured from Baltimore. The exhibit was installed successively in Oshkosh, Wausau, Superior, La Crosse, Madison, and Milwaukee. A milk exhibit from the College of Agriculture, The University of Wisconsin, was shown at the same time, and afternoon and evening programs, treating of the health of infants and children, and includ-

ing illustrations by lantern and motion pictures, were provided at each of the places visited.

3. Development of the Community Institute. The first Community Institute arranged by this department was held at Sauk City, February 4th to 7th, 1913. So great was its success and the immediate demand for this service that seven institutes were conducted in the following year. A feature of the work is the co-operation of State Departments and Commissions, by which knowledge of the possible value of these organizations to the communities addressed is brought to them by speakers from these bodies or representing them.

4. Miscellaneous Activities as follows: Service embracing secretarial and advisory duties for the State Conference of Charities and Corrections and the Madison Board of Commerce.

Preparation of bulletins as follows: General Prospectus, Community Institutes, Instructions for Community Institutes and Community Development. A bulletin on Industrial Education and Dependency written by Professor John R. Commons, was published by the Division.

Lectures for the Department of Instruction by Lectures and other lectures in connection with the development of the Community Institute.

Assistance in the preparation of Health and Recreation exhibits.

In view of the recent development and success of the Community Institute, the following excerpts from letters of interested citizens are included as significant of the catholicity of appeal of this form of service, and of its practical value.

"* * * You folks certainly stirred up the community spirit in good shape last week and we want to follow it up along certain lines and have a 'Business Men's Get-Together Dinner' occasionally."

"The people are still enthusiastic about the Community Institute and a good many farmers have made voluntary contributions of a dollar or so toward expenses. By the way, even if it is very early, the sentiment is practically unanimous for another institute next year, so * * * consider us in line for another one."

"As to the Community Institute held in our city, I am frank to say that I believe its educational value will be far reaching

and that we will be following some suggestions given to us by some of the speakers you had here, in months, yes, in years to come. I heard one woman say that she knew of seven persons who were converted to Associated Charities ideas by attending the Community Banquet. Many have expressed a wish that we would have another, and of course many regret that they have missed such a grand opportunity to become informed in regard to the vital problems of the day."

The most important measure of success of the Institute is the directness of its application to conditions existing in the community addressed. The sessions must be not only instructive and inspirational, but constructively helpful and suggestive. To contribute to this end, a preliminary survey is made by a member of the Welfare Department and before the opening of the institute the speakers who will come before it, are given such points as will enable them to apply their talks so far as possible to specific needs, whether in sanitation, housing, provision for recreation, art appreciation, or any of the countless considerations that are elements in community planning. Another fertile expedient by which the institute becomes locally valuable, is through conferences on special topics between interested groups of the Community's people and Extension workers.

WELFARE BUREAUS

For the necessary specialization of activities so diversified as those of the Welfare Department, a number of expert workers are employed, each to develop his own line of community service and at the same time contribute to the work of the department as a whole. These special workers are at present Mr. Ford H. MacGregor, Chief of the Bureau of Municipal Reference, Mr. Edward J. Ward, Chief of the Bureau of Social and Civic Center Development, Dr. Hoyt E. Dearholt, Chief of the Health Bureau, and Mr. P. W. Dykema, who gives one-third of his time to Community Music. All of these bureaus have, in my judgment, justified their introduction.

MUNICIPAL REFERENCE

The Municipal Reference Bureau, earliest in organization, has established a valuable municipal reference library, classified and in form to be of wide service to the state. The head of this Bu-

reau is now engaged in efforts to increase and enforce its state-wide usefulness. The cost of this work when compared to its value is small, and its assistance is highly regarded by those who have availed themselves of it.

The following brief statement of the resources of the Municipal Reference Library gives a partial view of the field covered:—

In addition to the general collection of material on city government, the Bureau has, during this biennium, made several special collections of documents. It has completed its collection of charters and ordinances by adding all those printed during the last two years. It has completed a very large and valuable collection of building codes and ordinances. The building code of practically every city in the United States that is in print is now on file in the Municipal Reference Library, and may be borrowed by the cities of the state. An equally complete collection has been made of park reports and city plans, covering nearly every city of 25,000 population or over in the United States which makes such reports. A great deal of valuable information on park management and maintenance is contained in these reports. The Bureau has also made a collection of charters, ordinances, and state laws providing for the city manager plan. Practically all of the organic laws under which cities having city managers are now operating are on file in the Reference Library. Special collections have also been made on special subjects such as wheel tax ordinances, milk ordinances, dance hall ordinances, ordinances regulating prices charged by hackmen, moving picture censorship, and other subjects on which ordinances have been recently passed and proposed. These special collections have been in addition to the general collection of a great mass of information and data, articles, reports, documents, and clippings dealing with municipal administration and public improvements, most of which, like concrete pavements, street oiling, etc., are of vital interest to the cities of the state at the present time.

CIVIC AND SOCIAL CENTER

The Civic and Social Center Bureau, second in establishment, has been instrumental in awakening a widespread civic consciousness, tending toward neighborhood organization and united community interests. Movements have been set on foot to establish a common meeting ground, not only in the purposes and aspira-

tions of the people but also in the actual place of gathering. Progress has been made in recognition of the wasteful practice of closed schools out of school hours and of the need for wholesome and safe recreation of many of the young people and some of the older folk in every community.

In a few cases paid secretaries for furtherance of civic and social center developments have been secured. In others the work has been more or less successful in the hands of interested laymen. Several definite advances made quite recently may be regarded as evidence of a growing understanding and acceptance of the Social Center conception in its modern interpretation.

Mr. Ward reports as follows:

"On June 20th—ten days before the close of the biennium covered by this report—the school board at Osseo, Wisconsin, voted to engage Mr. R. M. Blackman as School Principal and Civic Secretary, the one-third increase over the salary they had been accustomed to pay the Principal being definitely understood as remuneration for service as Secretary of the Adult Organization of the Citizens of Osseo and Organizing Director of all the uses of the schoolhouse as the Social Center of the community.

"Within a few days, the school board at Sauk City, Wisconsin, re-engaged Principal M. T. Buckley, with the specific understanding that he is to continue his service as Civic Secretary and Organizing Director of Social Center activities, not as a matter of outside and unauthorized extra work, but as a definite part of the service for which he is paid by the community."

Mr. Ward further reports that Milwaukee, with Mr. Harold O. Berg engaged to supervise the development, has eight buildings open an average of five nights a week, with a total attendance of 320,000 for the past season. In Superior, the superintendent of schools is authorized to employ six part time district secretaries, "in order that the people might use the schools evenings for cultural, civic, recreational, and social purposes." The Social Center attendance during the past season in Superior has been 28,953.

Questionnaires sent from this department elicited the following returns:

	1911	1913
Responses	176	451
Number of times schoolhouses used for non-compulsory activities during season.....	86	278
Schoolhouses used by adults for public meetings of serious civic character	76	229
Number of districts in which young people are organized to use schoolhouse for training in self-government or supervised recreation	24	60
Number of principals who believe in and approve the use of schoolhouse as the civic, social, and recreational center of the district	150	451

The further activities of this Bureau during the biennium have included the making and distribution of a program for a year of Social Center meetings, including provision for both study and recreation, with the offer of material with which to work and lists of speakers and entertainments available; in co-operation with State Superintendent C. P. Cary, the calling and conducting of a National Social Center Conference; the preparation of bulletins; the distribution of bulletins prepared by the department and of other bulletins (see list at end of report); and eighty-eight lectures upon the various aspects of Social Center development.

HEALTH INSTRUCTION BUREAU

Under the able direction of Dr. H. E. Dearholt, the work of the Health Instruction Bureau, though recently inaugurated, is making itself felt. A news health item is widely disseminated throughout the state, and exhibits, lecture and correspondence courses are doing their work of educating the public in measures of prevention, care, and cure.

The diagram at the end of the report offers a graphic illustration of the organization plan of the Health Instruction Bureau, and indicates the place the Bureau is filling between the scientific departments and the general public. The Bureau, says the report of the Chief, undertakes to translate the technical language and make available the knowledge of the scientific departments through the main channels indicated. For this purpose it maintains a close relationship with a number of extra-mural and federal departments and organizations from, and in co-operation with which, information is secured and disseminated. These include the National Public Health Service and Child Welfare Bureau; American Medical Association; State and Local Medical Societies, etc., including other departments of the Extension Division.

MEANS OF DISSEMINATING HEALTH INFORMATION

The chief media employed for such dissemination are represented in the diagram under the classified group which includes lectures, publications, consultations, exhibits, information, correspondence, and surveys.

THE PRESS

In the beginning sixty-five newspapers agreed to print the Health copy regularly. This number has been increased to three hundred and thirty, which constitutes considerably over one-half of Wisconsin's newspapers.

To meet a spontaneous demand on the part of the German press, translations are furnished through the German Department of the Extension Division. In addition to the regular subscribers to the free newspaper service, occasional newspapers run the editorials as original editorial matter without credit to the source. No more sincere compliment could be paid to the timeliness and popularity of the service. Particular emphasis is put upon care of infants, diseases of childhood, school, industrial, and personal hygiene.

Other activities of the Health Instruction Bureau include the following:

In collaboration and co-operation with the Wisconsin Anti-Tuberculosis Association, high grade general health lectures have been furnished to 31 communities of Wisconsin in connection with the lecture service of the Extension Division and with the Community Institutes. An exhibit of 125 charts and 25 models has been manufactured and secured in collaboration and co-operation with the Wisconsin Anti-Tuberculosis Association. These have contributed to the success of the Community Institutes and have been employed in independent exhibits, window displays, the manufacture of stereopticon slides, etc. Duplicates of school hygiene, child welfare, and other charts are furnished to schools, clubs, societies, etc., at cost of manufacture.

A Correspondence-Study course in Sanitation for Health Officers and other interested students of public health has been prepared and is ready for registrations.

A well defined demand exists for a correspondence course in Social-Medicine for district nurses and visitors.

A bulletin upon infant feeding and hygiene is nearing completion.

In co-operation with the Wisconsin Psychopathic Institute a bulletin will soon be forthcoming on Mental Hygiene.

The bureau was called upon for a sanitary survey of the State Fair grounds. The report presented, by request, to the Legislative Committee of the last Legislature led to a contingent appropriation of \$25,000 for improving the sanitation of the State Fair grounds.

The bureau is called upon by individuals and by civic and professional organizations for expert advice on problems of social medicine, hospitalization surveys, etc. No effort has been put forth to develop a demand beyond our means to meet adequately at once.

BUREAU OF COMMUNITY MUSIC

The Bureau of Community Music, though drawing upon but one-third of the time of Mr. P. W. Dykema, its Chief, has already been successful in bringing about a new appreciation of the value of music as an influence for betterment. Nearly all people love to sing or make music with instruments. They are happier and better if afforded the opportunity to develop their musical abilities and tastes. Community music is a great mixer and no institute is really successful without the inspiration of good music made by its members.

Mr. Dykema's enthusiasm and skill as a musical director and propagandist have been well established in the first year of his service. He includes within the scope of his work the following:

1. Community Music, under which term is included any endeavor for the spreading of the use of music in the communities throughout the state. The most tangible form in which these endeavors are manifested is in the formation or stimulation of group organizations, or choruses.
2. Correspondence courses in music, dealing with theory of music, appreciation, technical courses in elementary theory, harmony, public school music, and community music. This work is individual.
3. Miscellaneous activities along social lines.

Under these heads the work is developed by (1) addresses to teachers' associations, clubs, community institutes, and bodies gathered for the specific purpose of listening to a talk on the use

of music as an influence in the community; (2) the preparation of bulletins, articles for publication in newspapers and magazines, material for social center groups, a pamphlet of eighteen songs for community singing and chapters of a forthcoming volume on Community Music; (3) the organizing and assisting in the drill of choruses or other musical work in various parts of the state and in Madison, the management of the Choral Union, also of informal student gatherings, football rallies, etc.; (4) the preparation of Correspondence-Study courses; and (5) the teaching of a six-week course in Community Music during the University Summer Session.

BUREAU OF VISUAL INSTRUCTION

The Bureau of Visual Instruction was organized last year and Mr. W. H. Dudley, formerly Professor of Biology at the Platteville State Normal School, was elected Chief of the Bureau. Mr. Dudley did not begin work, however, until January 19, 1914.

Previous to the establishment of this Bureau, a small beginning had been made in the collection and use of equipment for visual instruction but without provision of special workers or funds for its promotion. As soon as it became generally known that motion pictures and lantern slides for educational purposes might be obtained from the Extension Division, the demand for this service became so insistent throughout the state as to create the necessity for definite provision to meet it.

The appointment of the present Chief was especially fortunate. For many years a large part of Mr. Dudley's time has been devoted to perfecting processes of visual illustration and his experience includes knowledge of business as well as of pedagogical requirements.

Mr. Dudley's report, though covering a period of less than a year shows the value of this development, as recognized by educators. It is probably not too much to predict that this work in time will immeasurably enrich and even to a degree revolutionize the present elementary educational methods.

The immediate response to the opportunity offered is illustrated by service rendered between January 22, 1914, and July 1, 1914,

- a. Number of sets of lantern slides (averaging 90 slides to each set) sent to schools and civic centers..... 212

(This makes an average of 115 slides sent to each of the 165 schools having lanterns, or two and one-half times as many as the average number owned by these schools.)

- b. Number of reels of motion picture films sent to schools and civic centers 220
- c. Number of different centers that received slide and film service 74
- d. Since January 22, the Chief of the Bureau has given 35 lectures, or stereopticon and motion picture talks, meeting school boards or civic center committees in many instances to advise with them as to plans for receiving this service.

In only three instances have the expenses of these trips been paid by the University. In all other cases they were met by the schools or centers visited, usually from proceeds of the lectures. Occasionally the school or center netted a profit on the lecture, to be used towards purchasing equipment. In most cases one or the other of the following programs was given:

A. Program

- 1. Motion Pictures—Wading Birds.
- 2. Stereopticon Lecture—Our Common Birds.
- 3. Motion Pictures—Beautiful Flowers.
Rhododendron Culture.
- 4. Presentation of the work of the Bureau of Visual Instruction.
- 5. Motion Pictures.

B. Program

- 1. Motion Pictures.
- 2. Stereopticon Talk—Home and School Gardening.
- 3. Presentation of the Work of the Bureau of Visual Instruction.
- 4. Motion Pictures.
- 5. Motion Pictures.

C. Program

- 1. Motion Pictures.
- 2. Travel Talk—Mexico, the Land of Ancient Spain.
- 3. Presentation of the Work of the Bureau of Visual Instruction.
- 4. Motion Pictures.
- 5. Motion Pictures.

One of the meetings referred to was with the State Board of Control and the Superintendents of the various charitable and penal institutions in the Assembly Chamber at the Capitol. As a result of this meeting ten of the eleven institutions under this Board were authorized to put in the motion picture machines necessary to take advantage of this service.

Another meeting of the same character was with the Board of Regents and the Presidents of the State Normal Schools in July. Five of these schools are now receiving the routing service.

Thirty-five sets of slides, all colored, averaging 90 to a set, each set having a printed lecture or syllabus accompanying, may be had by any school or public organization in Wisconsin. No expense is involved beyond the express one way from the last place in the routing which will average thirty cents a week. Each set and film may be kept three days, coming regularly either Monday or Thursday during the period of thirty-five weeks.

Number of schools and centers now receiving a routing service of 35 sets of slides and 35 films throughout the current school year 1914-15	138
Number of schools and centers receiving service but not on the routing plan	47
Total number of slides now out on this routing service.....	5,040
Number of films being thus routed.....	48

It is worth noting that as each of the 138 subscribers for the routing once-a-week service will receive a total during the thirty-five weeks of 3,150 slides, this will result in the use throughout the state during the ensuing year of 434,700 slides—nearly three times as many as were sent to the schools of New York during the year at a cost of \$25,000. Likewise, the number of films shown during the present year will total 4,900.

The schools in the state that have installed motion picture machines since July 1 cannot be far from fifty. In some cases the school or municipality is buying the local theater outfit.

In connection with this plan of routing in a systematic way to the schools, one or two important facts:

- a. The offered schedule includes 3,150 slides and 35 films.
- b. If these slides and films were *rented* at the regular dealers the expense to the school involved would be:

3,150 slides at 5c for 1 day only.....	\$157.50
35 films at \$2 for 1 day only.....	70.00

Total cost of this service to each school on rental basis for one day..... \$227.50

- c. By routing the service, the cost of transportation to each school does not exceed 35c for each package or a total for this year's service, of from \$10 to \$15. Each of the 138 schools now receiving this service of 35 visits is getting that which, put on a commercial basis would

cost these schools for slides \$21,735, for films \$9,660, or a total for these two items alone of \$31,395. Then transportation on such a service from Chicago or Milwaukee would be a much larger item—fully \$1 for each visit of slides and films.

- d. Through this Bureau arrangements have been made with the leading manufacturers, whereby the schools can secure machines and lanterns at practically jobbers' or wholesale prices, which puts the best makes within the reach of the smaller schools.
- e. We have also been experimenting with the different types of stereopticons already in service in the schools of the state, connecting with them the mechanism of standard motion picture machines. These experiments have been so satisfactory that we can safely advise schools to buy a mechanism only and attach it to their own lanterns, thus resulting in a large saving.

A number of the regular University faculty have signified their willingness to put slides belonging to their departments at the disposal of this Bureau or for service. Inasmuch as there are thousands of slides in the University which are used in their respective departments only once or twice a year, it is proposed to make as careful and systematic a canvass of the situation as time will permit to the end of getting as much of this material as can be used profitably in the high schools into circulation throughout the state.

We have under way, and hope to complete within the next six weeks two bulletins, as follows:

- a. A bulletin showing the work and plans of this Bureau, methods of operation, etc., including, also, complete and classified lists of our lantern slides and films.
- b. A bulletin containing from one hundred to one hundred fifty experiments that can be made with a projection lantern, with directions for performing such experiments, etc. This bulletin will also contain various other matters under the general head of "Ways and Means," sources of material and supplies, etc.

It is planned to organize a series of six sets of slides on each of eight or ten important subjects, these sets to be available

for use in connection with the regular class work of the high schools. Some of the subjects to be thus treated are the following: History, literature, agriculture, botany, art, geography, travel, home economics, manual arts, birds, and Wisconsin.

PRESS BUREAU

When the Press Bureau of the University was created in 1913, a publicity service under the control of the Department of Journalism had been operative for a number of years. A weekly press bulletin and mimeographed sheet service went to many of the papers of Wisconsin and to some papers of other states.

With the introduction of the Press Bureau the work was given an editor, Mr. C. W. Holman, and an assistant devoted exclusively to its promotion.

The new Bureau began its work by making a canvass of the press and of the University, as a result of which some changes came about in the plan of the work. To begin with, there is no effort made in the Press Bureau to advertise either the University or the men who compose its instructional force. It does, however, act as a disseminator of those things for which the University stands, democracy, and service, and of ideas and knowledge as they represent the men of the faculty.

The editor of the Press Bureau states the aims of his work in a general way as follows:—

1. To educate the public through the press.
2. To improve the quality of news matter and information furnished the readers of periodicals.
3. To increase the number of periodicals in the state and nation using educational matter from the University.
4. To aid in raising news and editorial standards by handling in an interesting way matter that requires the development of social vision on the part of the press to be recognized as news.

The mailing lists of periodicals receiving service from the Bureau have been revised, enlarged, and brought up to date. This question of the lists is a matter of daily attention and proofs of the latest list of Wisconsin papers are in the editor's

possession ahead of the publication of the Wisconsin Blue Book.

An added feature of the service by which the papers are read, their contents analyzed, and matters they have secured from the University recorded, enables the Press Bureau to know

1. The periodicals that use University material.
2. How regularly used.
3. Periodicals not using University material.
4. The kind of article that is popular.
5. What news of the University is touching the people.

No story or article is allowed to go into the mails until it has been thoroughly checked and approved by the department of the University from which it originated.

In time it is hoped to make the instruction by the University of the people through the press the strongest and most important work of the Bureau. By utilizing the Bureau as a clearing house, every department in the University is offered the opportunity to influence and stimulate thousands of readers. It is quite consistent with the broad and liberal view of University service characteristic of Wisconsin, that some part of the lessons taught to the resident student shall be conveyed in more or less popular form to the great newspaper reading public. This would seem one possible means of greatly improving the quality of general reading matter that fills a large part of the daily and weekly news space.

In addition to the news gathered directly by the editorial staff and such assistance as has been gained from the instructional force, the Bureau has sought and secured co-operation from the head of the course in Journalism who last year assigned between forty and fifty students to cover this work. Each student was given a county and a list of the students who registered from that county. This resulted in a news service that was acceptable to the papers published in the counties from which the students mentioned in the news items came.

As an evidence of the success of Mr. Holman's policy, in the nine months between December 6, 1913, and August 1, 1914, the following new stories appeared as a result of this service: On Extension, 2725; Agricultural, 2417; with respect

to administration, 458; on athletics, 120; Historical, 88; Editorial, 77; from the College of Letters and Science, 73; Engineering, 41; Medical, 36; Musical, 36; Law, 2; and of miscellaneous interest, 368; making a total of 6,441 articles, many of them purely educational. Many of these articles have appeared in papers all over America, and one has been secured for publication in a federal bulletin.

DISTRICTS

Although mention was made in the Biennial Report of 1910-1912 of the prospective opening of the Districts of Superior and Wausau, they were not established until early in the following year, the Superior District in July, 1912, and the Wausau District in August of the same year.

On November 1, 1913, the Eau Claire District was opened.

There are now six districts with central offices in each district. These six districts cover 66.2 per cent of the total area of the state. Including the counties worked from the home office—those lying near Madison—the area of the state covered is about 77 per cent. The southwestern corner has no provision for local service and other parts of the state are inadequately covered.

It has been planned to open two more districts during this biennium, but the imperative demand for additional assistance to carry on the established work and the desire to keep the expenses of the biennium as low as possible may make it inadvisable to do so. However, the distribution of Extension students throughout the state shows that district organization is important. As soon as practicable, therefore, two, or better, three additional districts to cover the remainder of the state should be opened.

MILWAUKEE DISTRICT

Mr. E. M. Barrows, present District Representative of the Milwaukee District, was appointed less than a year ago. Previous to that time, Professor K. G. Smith was in charge. During Mr. Smith's regimen the work of the district was almost entirely elementary industrial. After the law relating to industrial education went into effect, a large part of this work

was gradually assumed by the Continuation Schools. As has been explained, this was done with the hearty co-operation of the Extension Division. The change, however, cut heavily upon the Extension registrations and required a reorganization in that district. The same thing happened in other districts, but not to the same extent, no other district having met in its early development so definite a call for training applied to industries. What has happened in the Milwaukee District is an excellent illustration of the need for adaptability in Extension methods.

Mr. Barrows thoroughly appreciates the situation, has re-organized the work, and is handling the problem in a way that should guarantee large results. His report shows how a district must be studied and the work adapted to conditions.

HEADQUARTERS

The existing headquarters having proved too small to accommodate the growing staff of instructors and organizers, and the class space insufficient, suitable headquarters were found in the old Milwaukee Academy Building, 471 Van Buren Street. This building has been leased for five years and remodeled to suit the needs of the Extension Division and the Wisconsin Anti-Tuberculosis Association jointly. The building was ready for occupancy late in February, and by the first of March all offices and departments were completely settled there. A proportion of the rental is paid by the Anti-Tuberculosis Association.

REVIEW OF WORK OF FIRST AND SECOND YEARS

The year 1912-1913 was devoted almost exclusively to class work in business and engineering subjects. The Extension Division had an extensive system of classes in elementary shop mathematics, and elementary drawing for shop apprentices in various factories throughout this district. These constituted the bulk of the Engineering work. A number of classes in elementary business subjects, principally in Bookkeeping and Elementary Cost Accounting were held in Milwaukee and Racine. These courses made up some 60 per cent of the total registration for the year. The apprentice work amounted to approxi-

mately 26 per cent, leaving 14 per cent of the registration for advanced Engineering, Business, and general subjects. A social service institute, designed to give technical instruction in problems of dependency to social workers, was held at the public library building in Milwaukee. A class in contemporary English Literature was held at the public library also. These, with an English class at Fort Atkinson, constituted most of the general work done in 1912-1913.

With the adoption of the continuation school system in the summer of 1913, by the leading cities in this district, the apprentice work was abandoned, and thus it was possible to place more emphasis on the higher engineering subjects and upon work of a general character. The proportion of class work to correspondence work changed from 95 per cent of the total registration in 1911-1913 to approximately 54 per cent in 1913-1914. In all 17 classes or study groups were held in 1913-1914 as against 22 in 1912-1913. These included 7 engineering courses, 6 business courses, 1 course in Spanish, 1 course in public speaking, 1 course in English literature, and 1 medical course. The broadening tendency of the work in this district is revealed in these figures. In 1913-1914 the number of higher Engineering course registrations more than quadrupled, while the number of elementary course registrations diminished by somewhat the same proportion. In city drawing and elementary Mathematics registrations are more stable, although the distribution of students in these two courses almost reverses itself in the two years. English course in English literature increased in 1913-1914 from 4 to 10, an increase of over 150 per cent. In correspondence registration 1 subject and groups in 1913-1914 as against 22 in 1912-1913.

The total class registrations amount to approximately 10 per cent of the total correspondence and class work in the district, which courses were given the same treatment as the total number of subjects in which the correspondence work was done. The work in 1913-1914 was a continuation of the work in 1912-1913, the class work in 1913-1914 being a continuation of the work in 1912-1913, the correspondence work in 1913-1914 being a continuation of the work in 1912-1913.

THE REPRESENTATIVE'S FORECAST OF THE COMING YEAR'S WORK

It is not possible to forecast accurately the amount of work which can be done in one year in the rather plastic present state of our organization. The plans here outlined indicate only the trend of the coming year's work; circumstances may necessitate changes.

General Plan of the Work. While the correspondence and class work will be pushed vigorously, the Lecture Department, Community Institutes, and Social Centers will this year be given a proportionate share of attention. Local conditions make it necessary that the class work in the city of Milwaukee receive the first attention. During the early winter the attempt will be made to establish Extension work on a basis which will permit of its continuance through the year in all towns in which community institutes have been held, and in certain other selected towns. The lecture work will be pushed during this time also.

In this outline, only the main features of the work are indicated. A single social center experiment on a rather elaborate scale in the city of Kenosha, some continuation school work, a series of city lecture courses, some special work through conventions and such organizations, are also an inherent part of this year's program, which must be carried through continuously while our general program is being consistently pursued. A training course in social service, based on the six weeks' experiment along this line by the Wisconsin Anti-Tuberculosis Association, is under consideration also, but it is not definite enough yet to warrant any forecast.

A class in school ventilation to be conducted in Racine is a unique attempt to solve the problem of heating and ventilating for janitors. The Racine board of education agrees to register all its janitors in the six or eight assignment course on school heating and ventilation, which course is based upon a preliminary survey of the Racine schools themselves. If successful, it is planned to place the same course in other larger cities in this district.

Based on demands from special groups, the following lecture series are under consideration for Milwaukee. These

lectures are instructional, and students will be registered in the courses as in correspondence and class work.

1. A course of six lectures for University Club of Milwaukee. It has been suggested by club members that we try to get the services of a distinguished scholar in a special field, as for example an Egyptologist, for this lecture series.

2. A commercial course, probably on money and banking, or the tariff, for the Merchants & Manufacturers' Association of Milwaukee.

3. A course in Industrialism and the Labor Movement, worked out in such a manner as to be interpretative and of interest to both organized industries and organized labor.

4. A series of lectures probably dealing with the economic status of woman, arranged for the Woman's Clubs, and allied organizations of Milwaukee.

5. A course dealing with the federal currency act, given for the bank clerks' institute and the banking interests in Milwaukee.

Four towns have indicated a degree of interest in the community institute idea.

The social center problem in this district is in many ways complex. Milwaukee has an excellent system of social centers with which the Extension Division is on the most cordial relations. In most of the smaller towns of the district, there is much interest in the possibilities of the social center. This interest is easily aroused to the point of a public meeting, but once the meeting is held, if there is no definite plan of action started, interest dies down again, and it becomes exceedingly hard to re-awaken. Yet the social center should furnish an ideal basis for Extension work if the Extension Division could identify itself with the inception of the movement in a community, and thus attain a strategic position for placing its courses, classes, correspondence work, and lectures. For this purpose we are very fortunate in having as District Organizer, Mr. Clinton S. Childs, former executive secretary of the New York City Social Center Committee who brings into this work a fund of practical experience in the details of social center management exceeded by few men in the United States.

Through the influence of Mrs. Bradford, superintendent of schools at Kenosha, one of the ward schools of Kenosha will

be placed at our disposal with janitor service, light, and heat furnished, this winter for a trial under very favorable conditions of the experiment of making the Social Center the basis for the application of Extension services. Mrs. Bradford who is deeply interested, promises to use her influence in the organization of a local social center committee to take general charge of the work. The plan is to have a local executive committee to supervise all social and educational activities in the building, in the evening, with Mr. Childs acting in an advisory capacity, and the University Extension Division supplying lecture courses, classes, facilities for debating and dramatic clubs, etc., and supplying with the aid of local committees a series of meetings on civic subjects.

In connection with the foregoing more fully enumerated activities, the year's plans will include for the people's benefit, the extensive use of the work of the Health Instruction Bureau, the Municipal Reference Bureau, the Municipal and Sanitary Engineering Service, the Package Library, the Debating and Public Discussion, Visual Instruction, and allied departments.

OSHKOSH DISTRICT

Mr. A. H. Melville, District Representative and teacher of Sociology in the second district, reports the development of Extension work in the three years since he assumed the duties of his office. In 1911-1912, this district made 501 registrations; in 1912-1913, 565; and in 1913-1914, 748, thus showing an unbroken and satisfactory growth.

During the year of 1913-1914, a considerable increase in the total number of students took place, especially among those who were pursuing Correspondence-Study courses. The number of Correspondence-Study students during the year was 256 as compared with 99 for the previous year. Correspondence-Study registrations were 34.1 per cent of class registrations as compared with 17.1 per cent for 1912-1913. The number of class students was 493 as compared with 466 for the previous year. Twenty-nine classes were organized in 1913-1914 in 12 towns with an average enrollment of 17 students to a class, about the same average attendance as for the previous year.

In this district as in the first the establishment of the continuation schools made a change in the nature of a large part of the work called for during the biennium, the representative points especially to the rapid increase in the number of registrations for business subjects. The registrations in these courses constitute nearly half of the total number of registrations in the district. He notes that though the students are busy people having business engagements, social obligations, changes of schedules, lay-offs, and other obstacles which sometimes interfere seriously with study and occasionally compel them to drop their courses, yet the percentage of those who actually complete work in this district is large, ranging as it does from 50 to 70 per cent of the total registrations depending on kind of employment, et cetera.

In February, 1912, an eight-day child welfare exhibit and institute was held in Oshkosh under the auspices of the Extension Division co-operating with various civic and social bodies of the town. A great deal of interest was manifested in the meetings. The attendance was good—about 4,000 people were present at the different meetings. A great deal of enthusiasm was shown and the words of commendation from teachers, city officials, and public spirited persons indicate the values of the institute to the city.

With the opening of the year 1912-1913, the placing of lecture and entertainment courses was transferred to the districts. It may be observed that this work started out very briskly and that it has made a rapid growth. With about a dozen lecture courses in the Fox River Valley in 1911-1912 and 17 courses in 1912-1913, the number grew to 62 courses in 1913-1914. During the present year, 54 courses have been booked to date and probably before the end of the season the number will be equal to that for the previous year. In building up this large patronage only such attractions as are wholesome and educational in nature and that have real worth for a community have been urged. The courses range in price from \$50 to \$530; and the size of community from inland country hamlets of 25 or 30 people to cities of 35,000. The 62 courses placed consisted of 71 lectures, 82 entertainments, and 50 musical attractions. The amount of money saved to communities by buying University courses is large. In many

cases this saving has meant the difference between the town having a lecture course and not having any course at all. Our records show that 11 or more towns were enabled to finance good wholesome attractions of an educational nature this year that did not have lecture courses until the University made it possible for them to afford them.

LA CROSSE DISTRICT

Mr. W. P. Roseman has held the position of District Representative of the La Crosse District since its establishment.

The present biennial registration added to that of the previous period gives this district a total registration of 899. This registration represents 796 different individuals; and that the work has been a success during the entire period is indicated by the fact that 103 registered for more than one course.

About 40 per cent of the enrollment is in engineering subjects, and 34 per cent in business subjects; or, a total of 74 per cent are enrolled for what may be called vocational or practical subjects. The balance, or 26 per cent, have enrolled for preparatory and college subjects.

The spirit injected into the work of this district may be seen in the following from the representative:

It is difficult to enumerate the various ways in which we have assisted these young people, but I am thoroughly convinced that their lives have been enriched in a number of directions. We tried to inspire them by pointing out the possibilities for the young men and women who become most proficient in the particular line of work in which they are engaged. We have encouraged them to make use of the public library, to read current books along lines most closely connected with their work. We have contrasted the type of man who wastes time and energy in alluring pleasures with the more vigorous type who is ambitious and is willing to spend at least one evening a week to add something to his own efficiency and thereby increase his happiness as well as his earning power. In our classes we tried to do more than to teach the subject matter. The instructors aimed to encourage the men in their work and make them feel that service should be placed higher than wages. All this, in addition to the instruc-

tion and encouragement received direct from the instructors in Madison with whom the students are brought into correspondence, has no doubt brought many of these 900 young people into a new and more wholesome environment.

All departments of Extension service have been brought to the people of the district and cordial co-operation is experienced from civic, social, and business organizations, women's clubs, school boards, and people in general.

SUPERIOR DISTRICT

Mr. J. P. O'Connor, holds the office of District Representative for the Superior or Fourth District.

When the office of this district was opened at Superior in August, 1912, it was found that the activities of Wisconsin Extension were little known in northern Wisconsin. Forty students had registered for Correspondence-Study previous to that time, but the general public had little knowledge of the work. Publicity work, in which the newspapers gave valuable aid, was carried forward as rapidly as possible, and response was secured at once. Since July 15th, 1912 the total number of registrations for home-study work is 781, represented by 747 different individuals, of whom 607 are men and 144 women. Of these students, 422 have pursued business courses, 135 have taken engineering or mechanical subjects, 108 studied language, 61 took work in mathematics, 23 studied in the sciences, and 26 may be classed as students in cultural subjects. The majority of the students desire work in vocational subjects. About six per cent of the total number apply for work involving University credit.

Nearly all of the students of this district express a desire for class work, and it is consequently necessary to have a greater number of teachers than can be employed for the local work, alone. On account of the distance from Madison and the consequent time and expense involved in using the regular faculty instructors, it has been necessary to rely upon the district force and residents of this part of the state, and excellent local teachers in commercial law, pharmacy, French, German, English, social problems, and salesmanship have been secured.

The matter of organizing classes for elementary work in English has been given considerable attention. This work, in many localities, is well handled by the industrial night schools but in the rural communities and the smaller cities which have no industrial night schools, the work of teaching English to non-English speaking people should be actively carried forward by some agency, and the Extension Division can do much to initiate and further this work. Three classes for non-English speaking students have been conducted this year, and the results indicate the possibilities of the work. Such students are usually unable to carry the correspondence work, but they attend regularly and are very appreciative of the class work.

In opening the work of the lecture department it was found that only four towns in this district had secured the University Extension service. This work has been built up gradually and during the last twelve months fifty-three numbers have been given in thirteen different communities. Present demands indicate that the service will be increased about thirty per cent during the next year.

WAUSAU DISTRICT

On August 1, 1914, Mr. F. R. Hamilton who has been District Representative of the Wausau District since its organization, resigned to take the position of Director of Extension at The University of Kansas. Mr. Hamilton did excellent work. It is unfortunate that Wisconsin must lose him, but the opportunities offered by The University of Kansas to do constructive work in a broader field left no choice but to wish him well in his new undertaking.

The Fifth District for University Extension work was opened in Wausau, August, 1912. Three suitable rooms were secured, half of the expense being borne by the local Board of Education. The force in the office has consisted regularly of a District Representative, Engineering Instructor, Field Organizer, and Stenographer. This force has been augmented from time to time as the work demanded, by additional instructors, both from the University and the city of Wausau. The growth of the work will be indicated by the following brief statements, covering the activities in the different departments.

In Correspondence-Study there have been

Registrations—701	
Business	357
Engineering	246
Miscellaneous	98
	<hr/>
	701
Classes—31	

A large percentage of the students registered for engineering and business courses have been members of one or more of the classes offered in those subjects. The engineering instructor has conducted classes in plumbing, telephony, shop mathematics, gas engines, college algebra, mechanical drawing, and lumber measurements. The business classes organized were retail selling, accounting, money and banking, bookkeeping, window trimming, law of sales, and business English.

The boards of education and common council have very willingly permitted the use of class rooms. In addition to the classes, correspondence students have been registered in 57 different communities.

“It is well,” says Mr. Hamilton, “at this time to consider a demand for certain courses which the district has been unable to meet, viz:—courses in agriculture and courses in law. From the number of inquiries which have been made during the past two years it is evident that if courses were prepared in these two departments there would be a heavy enrollment for the work.”

In addition to furnishing lectures for teachers' meetings and commencements, there have been arranged in this district 98 popular and educational lecture courses. The sizes of the communities having these courses vary from the largest city in the district, Wausau, population 17,000, to the rural communities, such as Plover, R. F. D. The result of the experiment of placing a course in a rural community greatly exceeded the expectations. The patronage which it received indicates that the rural communities offer a fertile field for lecture course activities.

During the spring of 1914 the matter of arranging lecture courses in such places was taken up with the county superintendents, and received their hearty approval. One county

superintendent wrote,—“This idea has never been tried in this community but I am convinced that it has great possibilities and that it will be a means for community growth in many ways.” As a result, several courses have been arranged for inland and rural communities. It is hard for one not acquainted with the field to properly appreciate the value which such work has in the small and more isolated communities of the state.

EAU CLAIRE DISTRICT

Mr. J. H. Ames, who was elected District Representative of the Sixth District in the fall of 1913, was formerly Vice President of the River Falls State Normal School. His acquaintance in that district and his natural fitness for Extension work made him an especially effective worker. It is with great regret that his resignation has been received. The inducements from the Normal School with which he was formerly connected are so great that we cannot retain him.

That Mr. Ames began at once to secure results may be seen from his summaries of the work of his district from November 20, 1913, to July 1, 1914. The totals only are included:

Total of students enrolled in 11 courses of study.....	240
Number of towns represented.....	15
Total of classes.....	12
Total of members of classes.....	195
Individual students receiving instruction from field instructor....	12
Lecture courses	32
Single lectures	17
Schools and clubs supplied with debating material and package libraries	14

Many other miscellaneous activities in furtherance of social center development, arrangements for community institutes, business men's meetings, etc., etc.

RESIGNATIONS

During the past biennium one Secretary, two District Representatives, twenty-one Instructors, and seven Field Organizers have resigned. There are several reasons for this large number of resignations:

First, offers of more remunerative positions. At least thirteen left for this reason. A number of these went to Extension work in other states, the experience gained in Wisconsin making them desirable workers elsewhere.

Second, requests to resign. Since the Extension Division was organized, at least thirteen workers have been asked to resign because of lack of certain qualifications. Two others working for a definite period who desired to be reengaged were not, for the same reason. One man who had been engaged for six weeks with the understanding that if he made good he would be given a permanent place was not retained. Four others who were with the Extension Division for a year or more gave excellent service in many ways but fell short in certain particulars. Two of these received offers to go to other positions at my recommendation. The other two were called to other positions but could have been retained had we desired to keep them. Our experience has made it evident that strong, capable, effective teachers in residence may prove ineffective in Correspondence-Study instruction.

Third, many of the resignations were due to the fact that the employes themselves realized that they were not effective extension workers.

We should have been glad to retain some of the men who left us, but the opportunities offered them, including compensation, were large, and similar inducements could not be held out to keep them in their old positions.

The large number of changes during the past year, consequent upon these resignations, might seem to imply that discontent prevails among the teachers. The opposite is true. The members of the force are appreciative and loyal, but the Extension Division has a congenial atmosphere only for those who are thoroughly interested and who are securing at least satisfactory results.

HOUSING

In 1910, an estimate was presented of the space needed for efficient work of the Extension Division at the administration headquarters in the University. The legislature of 1911 made an appropriation for housing the Extension Division. The

work was then housed in University Hall, scattered from the basement to the attic, occupying, in many cases, inconvenient waste spaces, and using many inconvenient corners for storing its material.

On May 18, 1914, the work was moved to the new quarters, a building used jointly by the Extension Division and the Department of Home Economics, so completely divided, however, as to make practically two buildings.

The rooms and offices in the new quarters are admirably adapted to the work, but already the space is inadequate. The growth of the Division has been so rapid that the estimates of space made nearly five years ago, which then seemed generous, now prove to be insufficient for certain departments. Offices which were planned for two individuals must now house four. It has been necessary to line with shelves the walls of the lower halls for files of lesson papers, and certain basement rooms in University Hall have had to be retained for storage of working material of the Department of Debating and Public Discussion.

Nevertheless, the working facilities are in many respects admirable. They are so superior to the conditions that prevailed in University Hall that the only reason for calling attention to the situation is to make known the fact that it will be soon necessary to provide additional space if the Extension Division continues to grow.

MILWAUKEE HEADQUARTERS

The old quarters in Milwaukee, on the third floor of a business building, consisted of one general organizer's office, a District Representative's office, a general class room and Instructor's office, and an engineering drafting room. The new quarters include a separate room for stenographers, separate offices, adequate though not large, for the District Representatives and for the group of organizers, a lobby or reception room which can also be used as a class or meeting room, offices for the business and engineering instructors, a large room capable of seating 175 people or more, divided by a sliding partition into two class rooms, and an engineering class room. The building is steam heated and electric lighted. Besides

the space which is devoted to the district offices of the Extension Division, the Health Bureau of the Extension Division and the Wisconsin Anti-Tuberculosis Association occupy three offices and a large basement for the exhibits of the Health Bureau. The auditorium is available for lectures and small public meetings of various kinds. Plans for next year's work include the use of this building for several lecture courses and public meetings of a nature which would have been utterly impossible in one of the commercial buildings such as the Extension Division has occupied heretofore.

DEVELOPMENT CALLED-FOR

As has been pointed out, the addition of two or three district centers is needed in order to spread the work evenly over the entire area of the state. Attention has been called also to several urgent demands not met in the present applications of established work. These demands call for added courses of study and added workers with special qualifications, of such a nature as to recommend themselves upon examination. The following are among the most important of these and should be met as soon as funds are available.

(a) Agricultural correspondence courses:

There is a growing demand for short unit correspondence courses in agriculture. Provision should be made for giving such courses at a very low rate. It is the practice of the College of Agriculture to do extension work free of cost. In order, therefore, to make the agricultural correspondence courses acceptable, they must be offered on a different fee basis from that which now prevails in the Extension Division. With the co-operation of the Agricultural College this work could be made widely useful not only for farmers but also for persons in towns and cities who desire to prepare for agricultural employment.

(b) Definite provision for commercial research and reference:

The last biennial extension report presented a program of work for a Commercial Research and Reference Bureau. The establishment of such a Bureau

during the next biennium is greatly to be desired. A man in charge and one clerk only would need to be added to the force. Beyond this overhead charge, the work could and should be made self-supporting.

(c) Additional provision for applications to women's special interests:

A woman organizer would be of wide use in the field. The person selected for this work should be trained in home economics as well as literature and should be well versed in woman's club management. Her duties should include the registration of correspondence students in all subjects, assistance in the establishment of women's organizations, and service to established clubs in the making and carrying out of their program of work and pleasure.

(d) Extended service in community and city promotion:

The Extension Division force needs a man thoroughly trained and experienced in matters relating to city promotion, preferably one who has been executive secretary of a commercial club or similar organization in a city of considerable size. The work of such a man should consist in awakening communities to the importance of better civic conditions, showing them the value of organization, and the need for study of all questions that have to do with municipal and community improvement. Such a worker having shown the value of organization and education, should be able, if desired, to help in the organization of communities, bringing to their attention the services offered by University Extension in the solution of community problems. Assistance of this nature is in demand throughout the state. People have begun to recognize the need for education in municipal management, but do not know how to secure it. The addition of such a member to our Welfare Department would increase the usefulness of the Municipal Reference Bureau, and, in fact, of all the established bureaus as well as of the community institutes. The position might be described as that of special advance agent for community work.

Little less important than the foregoing called-for developments is the need for expansion in certain educational lines as for instance in the languages especially Spanish, for which there is a growing demand. There is opportunity also for useful co-operation between University Extension and the Civil Service Commission in wisely assigning to Civil Service positions would be enabled to secure through Correspondence-Study courses which adapted especially to their requirements.

Much more might be accomplished through the departmental and district organizations with added clerical and instructional force.

LIBRARY SERVICES

The development of Correspondence-Study instruction has come to the point where a general policy with reference to supplying library and laboratory facilities to students living in isolated communities must be established and permanent equipment acquired. In this work the Free Library Commission has generally assisted but no viable institution can be expected to meet the demands for books which are useful only for narrowly specialized Extension work.

REVOLVING APPROPRIATION

In accordance with the act of the last legislature requiring that all fees collected for service rendered by the University force be paid to the State Treasurer, over \$30,000 was turned back to the State by the Extension Division. This practice of returning the fees to the State Treasurer has limited the service which the Extension Division might have given during the past year.

For example we have had many calls from vocational school boards for aid in the development of their schools by supplying instructors to meet classes once a week, the school board in these cases paying the full cost of the service received. If the fees received for this work could be put into a revolving appropriation and used to pay our teachers, the amount of this service might be materially increased. Since the vocational schools need these special teachers for only once or twice a week, they cannot afford, of course, to engage a man for his whole time and frequently it is impossible to find any one in the community who

has the training required for the work. By securing the use of our itinerant teachers they are enabled to carry on their classes in the best possible manner at a minimum cost.

The same thing applies to several other kinds of work which we are doing. It would seem, therefore, in order to make the Extension Division as helpful as possible that the policy of the revolving appropriation such as is now adopted in our outside lecture work should be extended to other definite service. The method has worked satisfactorily for the lecture work, its value being fully demonstrated. We believe that this fact will be recognized by the legislature.

NORMAL INCREASES

SALARIES

The members of the teaching force of the Extension Division are in the main young men and women. Three-fourths of them are between twenty-five and thirty-five years of age. Practically none have reached the limit of salary in the positions which they hold. It is evident that in order to retain them they must be advanced until they reach what is recognized as a fair salary for the responsibilities of their positions. This means, consequently, that annual increases relatively large must be made in salaries of instructors. The fact that 31 resignations took place during the past biennium, many for reason of outside offers of increased salary, is a proof of this statement.

The salaries paid to the clerks and stenographers in the Extension Division have been lower, on the average, than those paid in any other department of the state.

OCCASIONAL INSTRUCTION

It has been the practice to provide an item in the budget to meet the payment of teachers for temporary service during the vacation time of the regular teachers or during times when work is too heavy for the regular force, also for local teachers throughout the state who are paid for services rendered on the basis of a certain price per class. The need for occasional classes is growing so rapidly that the item for additional instruction must be increased for next year. This work could be taken care of

by enlarging the teaching staff in the district offices, but this would be much more expensive and is not necessary except for specialized subjects.

YEARLY GROWTH

To meet the demands of the regular yearly growth in all departments additional members of both instructional and clerical force will be needed during the coming year. Similarly, increased expenditure will be necessary for printing, postage, traveling, freight, express, and general supplies.

POLICY OF DEVELOPMENT

At the present moment, a policy of conservative development for the Extension Division would seem to be advisable. To meet the needs merely of normal growth will require an additional appropriation of not less than \$25,000. To satisfy the demand for new districts and special developments a considerably larger increase would be required. Provision for these should not be made and would be urged did not the increase necessary for growth under established conditions seem so large. The reason for so large an increase is readily appreciated when figures such as the following are taken into account: In the Correspondence-study Department alone the increase in registrations of this year for August was 46 per cent, for September 21 per cent, and for October 14 per cent over those of the corresponding months last year. This growth, at least, should be provided for. With a smaller appropriation than that estimated it would be impossible fully to meet not only the obligations of this department but of any department.

It is doubtless true, that improvement can be made in University Extension, but I believe it is conceded by those who examine the work that the expenditure made for it, is justified many times over by the results secured.

THE FUTURE OF EXTENSION

Under its present organization, the University Extension Division is an organic part of the state system of education and is closely affiliated with several of the state departments. The future, if one may judge from past experience, should increase

ingly show the wisdom of this provision. The establishment of University agents in every part of the state, their activity in service to individuals, to the smaller communities, and to municipalities already has been fruitful of better understanding of the truth that the State University is not in reality the possession of a limited few. I believe that we may expect that the coming years will prove, as has never been realized before, that the University and the government are a common possession in a very practical and serviceable sense. As criticism frequently is the outcome of lack of understanding, this widely extended service should lead in the course of a decade to the complete breaking down of the prejudice and indifference existing at present among those who have hitherto had no opportunity for personal contact with or benefit from the invaluable resources of the people's University.

Respectfully submitted,

LOUIS E. REBER,

Dean.

TABLE II

Occupations of Correspondence-Study Students

A

Abstractor, accountant, adjustor, advertising agent, advertisement writer, agricultural extension agent, agriculturist, appraiser, apprentice, architectural designer, architectural draftsman, artist, art glass salesman, assembler, assessor of income, assistant engineer, assistant observer, assistant postmaster, assistant superintendent, attorney at law, auditor.

B

Bacteriologist, bank clerk, banker, bank teller, baker, barber, berry grower, blacksmith, building superintendent, blue printer, boiler maker, boiler washer, bond salesman, bookkeeper, box factory, brakeman, brewer, business, butcher, button cutter, button maker.

C

Cabinet maker, caddie master, candy merchant, canner, canvassing, carpenter, cashier, cashier of bank, chauffeur, chairman, cheese dealer, chemist, chief clerk, chief mail clerk, chief of employment bureau, china painting, chiropractor, cigar maker, city salesman, civil engineer, clergyman, clerk, clothier, coalman, cobbler, collection manager, common laborer, composer, compositor, concrete foreman, conductor, construction foreman, contractor, converter man, correspondence, cost accountant, cost clerk, cost of efficiency, county surveyor, creamery, credit man, custom inspector.

D

Dairying, dean of women, delivery man, dentist, detailer, director of education, director of manual arts, domestic, draftsman, dressmaker, driver, drug apprentice, drug clerk, druggist, dyer.

E

Editor, electrician, electrotypist, emergency man, engineer, engine tester, erecting engineer, estimator, examiner Federal Government, express messenger, experimental engineer.

F

Factory hand, farmer, farm hand, field organizer, fig maintainer, filler, fireman, florist and seed grower, foreman, foreman tester, forester assistant, foundry checker, foundry foreman, fur designer, furniture house.

G

Garage man, garage owner, gardener, general agent, general superintendent, geologist, government employe, grain dealer, granite cutter, grinder, grocer.

H

Hardware merchant, harness maker, health commissioner, hospital corps, hospital externe, hotel clerk, housekeeper, house wife, hydro electric engineer.

I

Inspector, installer, instructor, insurance agent, iron moulder, iron worker.

J

Janitor, jewelry, journalist.

L

Landlord of hotel, landscape gardener, lathe foreman, laundry, leather chemist, letter carrier, librarian, lineman, lithographer, liveryman, locomotive engineer, lumber agent, lumberman, lumber scaler, lunch room man.

M

Machinist, maid, manufacturer, mason, masseur, matron, meat cutter, mechanical draftsman, member of legislature, meter man, meteorologist, manufacturing agent, manager shoe store, mill hand, mining engineer, minister, motor assembler, motorman, moulder, municipal engineer, musician, music teacher.

N

Naval officer, newspaper reporter, nurse.

O

Office boy, office girl, office man, office manager, oil driver, operating engineer, order clerk, osteopathic doctor.

P

Painting, paperhanger, pattern maker, pharmacist, photographer, physical training, director, physician, piano salesman, piano teacher, planing mill, plantation manager, plasterer, playground instructor, plumber, postal clerk, president academy, press man, principal, printer, private secretary, probation officer, production manager, product superintendent, proof reader, proprietor of foundry, publisher, purchasing agent.

R

Railroad signaler, railroad station agent, real estate broker, real estate solicitor, recovering teller, register of deeds, registrar, registrar in Probate Court, repair man, restaurant owner, retail clerk, rivet heater, road inspector, rodman.

S

Sailor navy, saleslady, salesman, saloonkeeper, sanitary engineer, saw setter, science assistant (U. S. Dept. Ag.) secretary, secretary of aluminum plant, secretary associated charities, secretary of auto company, secretary of board of education, secretary of Y. M. C. A., settlement worker, sheriff, shipping clerk, shoe clerk, social center director, social welfare, solicitor, soldier, specification clerk, stair builder, statistician, statistical clerk, stationary engineer, steam fitter, steward hotel, stenographer, stockman, stockroom foreman, student, structural designer, superintendent of aluminum plant, superintendent of bridge work, superintendent of city water works, superintendent of electrical plant, superintendent of school, superintendent of construction work, surgeon, surveyor.

T

Tailor, teacher, teacher manual training, teamster, telegraph operator, telephone man, tester, timekeeper, tinner, tool maker, tonnage clerk, tracer, traffic manager, transfer company, transitman, traveling man, treasurer manufacturing company.

U

Undertaker, underwriter, U. S. forestry, U. S. navy medical department.

V

Voltage regulator.

W

Waiter, watchman, weatherman, weaver, weigh master, wife and mother, window trimmer, wireman, woodworker, wrapping papers.

The above list shows 317 occupations reported by 5,786 students comprising the roster of this biennial period. Some of the students failed to fill out this form.

TABLE III

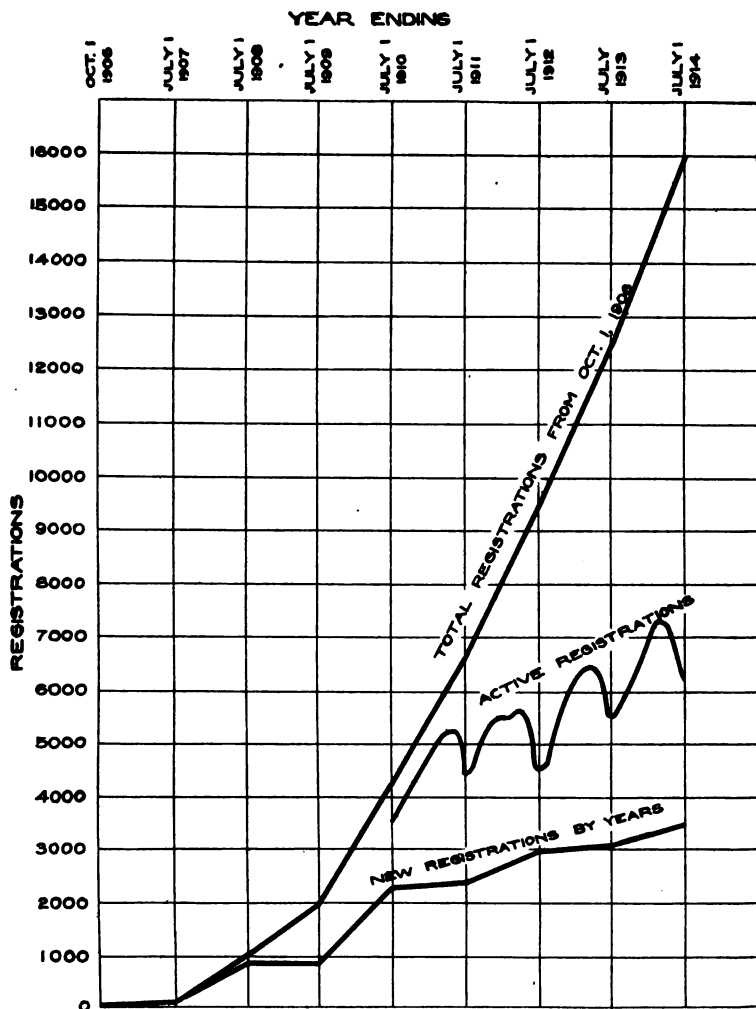
Correspondence-Study Registrations

	1912-13	1913-14
Number of students active in biennium.....	6313	7662
Number of students enrolled during biennium....	2731	3053
Number of courses enrolled for during biennium	3039	3459
Number of men enrolled during biennium.....	2249	2478
Number of women enrolled during biennium.....	482	577
Number of students enrolled for University credit during biennium	360	420
Number of students enrolled not for University credit during biennium	2371	2635
Number of students instructed in local classes during the biennium	1373	1100
Number of students pursuing work entirely by mail during biennium	1358	1955
The average age of students enrolled during the biennium	26.07	26.7

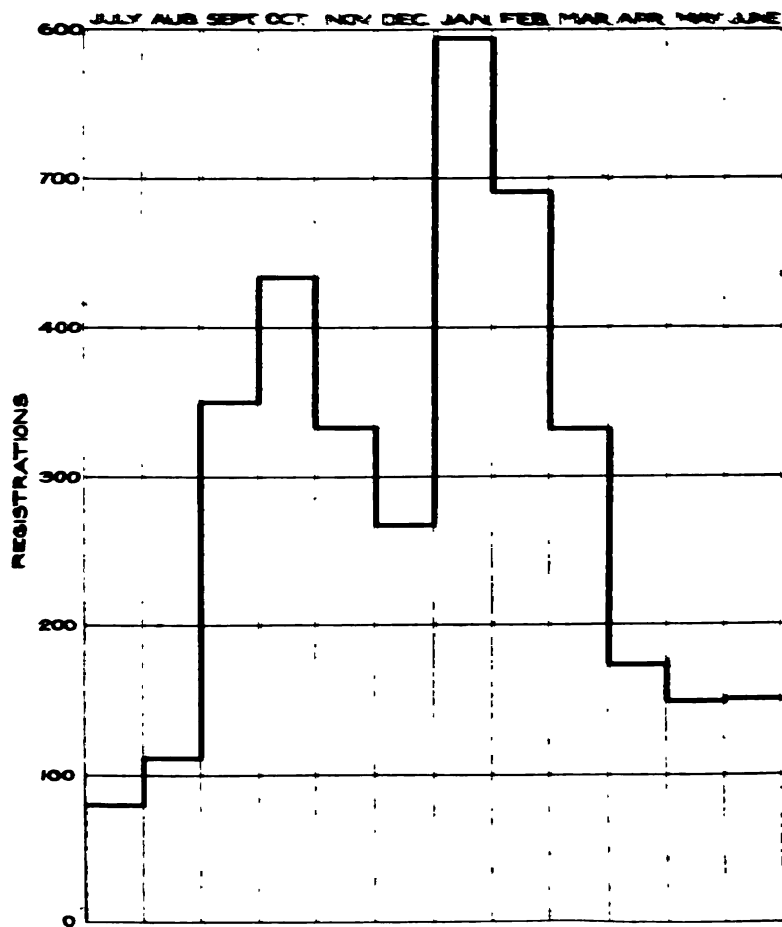
TABLE IV

Correspondence-Study Student Preparation

	1912-13	1913-14
Number of students below the sixth grade.....	35	52
Number of students attained the sixth grade....	42	51
Number of students attained the seventh grade..	112	99
Number of students attained the eighth grade...	441	513
Number of students attained high school	331	442
Number of students graduated from high school	311	416
Number of students attained business college....	145	158
Number of students attained or graduated from normal school	102	169
Number of students attained college	282	316
Number of students graduated from college	318	243
Number of students giving no data.....	612	596



GROWTH OF THE CORRESPONDENCE-STUDY WORK



REGISTRATIONS BY MONTHS

Showing, for the year July 1, 1913 to June 30, 1914, how the correspondence-study registrations vary with favorable and less favorable seasons for study

TABLE V

Analysis of Correspondence-Study Registrations

The table which follows gives in detail information regarding registrations in Correspondence-Study courses since the inauguration of the work in 1906 to July 1, 1914, the end of the present biennial period.

	Total registrations to July 1, 1914	Registrations before July 1, 1912	Registrations for biennium 1912-1914	Registrations for 2nd year biennium 1913-1914	Registrations completed before July 1, 1912	Registrations completed during biennium 1912-1914	Registrations completed, 1913-1914	Total registrations completed to July 1, 1914	Registrations for credit, completed to July 1, 1914	Changes by transfer	Registrations dropped	Registrations holding over July 1, 1914
Ancient Languages.....	151	103	48	21	35	22	12	57	44	-9	35	50
Astronomy.....	14	11	3	1	5	2	10	10	1	1	3	3
Bacteriology.....	64	42	22	10	7	9	9	16	10	-1	18	29
(Medical) Lectures.....	313	86	227	36	86	227	36	313	3	-11	992	1,316
Botany.....	62	33	29	17	7	12	9	19	17	-12	6	25
Business.....	4,392	2,120	2,272	1,252	895	1,108	653	2,003	3	-11	992	1,316
Chemistry.....	104	61	43	29	9	31	18	40	3	-6	27	31
Drawing.....	1,295	898	397	150	167	149	58	316	26	-17	482	480
Education.....	156	86	70	50	32	53	42	85	70	-2	22	47
Engineering.....												
(Electrical).....	621	380	241	145	42	76	45	118	.....	-7	135	361
Engineering (Mathematics).....	1,890	1,462	428	202	218	118	74	336	.....	-16	866	672
Engineering (Mechanical).....	1,348	684	664	464	160	409	333	569	1	-10	329	440
Engineering (Structural).....	556	385	171	88	16	53	33	69	.....	-1	86	400
English.....	1,185	639	546	305	148	258	172	406	169	-19	312	448
Gardening.....	47	47	.....	47	.....	.....	47	.....	.....	.....	.....	.....
Geology.....	49	30	19	4	10	8	2	18	14	-3	7	21
German.....	530	358	172	94	114	78	36	192	158	-19	101	218
Highway Construction.....	148	148	.....	8	.....	.....	8	.....	.....	.....	140	.....
History.....	172	110	62	33	39	25	9	64	47	-8	38	62
Home Economics.....	33	17	16	15	15	2	17	.....	.....	-1	6	9
Mathematics.....	1,220	851	369	179	177	94	65	271	58	-71	452	426
Meteorology.....	2	1	1	.....	1	1	1	1	1	-1	.....	.....
Music.....	29	16	13	9	3	2	.....	6	.....	-2	7	14
Pharmacy.....	126	62	64	13	.....	14	14	.....	.....	-9	46	57
Philosophy.....	87	64	23	10	18	17	4	35	29	-3	16	33
Physics.....	16	8	8	3	.....	1	.....	1	.....	-2	6	7
Political Economy.....	691	359	332	192	227	228	112	455	103	-5	77	154
Political Science.....	71	33	38	17	3	14	5	17	13	-3	15	42
Public Speaking.....	11	.....	11	11	.....	.....	.....	.....	.....	-1	.....	10
Romance Languages.....	304	172	132	69	104	51	33	155	99	-10	41	98
Surveying.....	39	35	4	3	.....	1	.....	1	.....	-2	26	10
Teachers' Reviews.....	263	190	73	37	22	19	10	41	.....	-6	115	101
Zoology.....	1	1	.....	.....	1	.....	.....	1	1	.....	.....	.....
Total.....	15,990	9,492	6,498	3,459	2,615	3,086	1,789	5,701	866	-251	4,404	5,634

TABLE VI

Correspondence Study Texts

Written by Extension Teachers

Title	Author	Illustrations	Pages
Bookkeeping and Cost Finding for Printers.....	Fayette H. Elwell.....		285
Electrical Meters.....	Cyril M. Jansky.....	271	370
Elementary Magnetism and Electricity.....	Cyril M. Jansky.....	(Fully illustrated)	212
Heat.....	Edward M. Shealy.....	110	262
Reinforced Concrete Construction (Vol. 1).....	George A. Hool.....	140	354
Reinforced Concrete Construction (Vol. 2).....	George A. Hool.....	412	657
Retail Selling and Store Management.....	Paul H. Nerstrom.....		279
Shop Sketching.....	Joseph W. Woolley.....		
Shop Mathematics.....	Rev. B. Meredith.....	122	104
	Earl B. Norris.....		
	Kenneth G. Smith.....	85	187
Advanced Shop Mathematics.....	Earl B. Norris.....		
	Ralph T. Craig.....	218	210
Steam Boilers.....	Edward M. Shealy.....	185	356
The Elements of Structures.....	George A. Hool.....	140	188

TABLE VII

**List of Institutions Which Have Adopted the Extension Division Texts*

GROUP A

Extension Departments

University of Arkansas
 University of California
 University of Colorado
 Columbia University, N. Y. City
 Miners' and Mechanics' Institutes of the University of Illinois
 Iowa State College
 Kansas Agricultural College
 University of Kansas
 University of Minnesota
 University of Nebraska
 University of North Carolina
 Oregon Agricultural College
 Pennsylvania State College
 University of Tennessee
 University of Wisconsin

GROUP B

Colleges and Universities

Armour Institute of Technology
 Brown University
 Catholic University of America
 University of Cincinnati

**This list was furnished by the publishers*

College of the City of New York
 Coast Artillery School, Ft. Monroe, Va.
 Colorado College
 Drexel Institute
 College of Hawaii
 University of Illinois
 LaFayette College
 University of Louisiana
 Maryland Agricultural College
 University of Maine
 Massachusetts Institute of Technology
 University of Minnesota
 Montana State College
 New York State Normal College, Albany
 University of Nevada
 Norwich University
 University of Pittsburgh
 Pratt Institute
 Princeton University
 Rhode Island State College
 Rutgers College
 University of Southern California
 Texas School of Mines
 Trinity College, N. C.
 Tuft's College
 Union College
 U. S. Government Engineering School, Washington, D. C.
 Nova Scotia Technical School
 Utah Agricultural College
 University of Washington

GROUP C

Miscellaneous Industrial Trade and Technical Schools

California— Oakland, California Polytechnic College
 " Berkeley, Franklin Night School
 " Reprisa, State Prison of Folsom
 " San Francisco, Heald's Engineering School
 " San Francisco, Mare Island Navy Yard School
 " San Quentin, State Prison

 Canada— Shawanigan, Technical Institute

 Connecticut— Bridgeport, State Trade School
 " New Britan, State Trade Educational Shops
 " New Britan, Y. M. C. A. Class
 " New Haven, Y. M. C. A. Class

 Colorado— Salida High School

 Illinois— Aurora, Y. M. C. A. Class
 " Chicago, Crane Technical High School
 " Chicago, Lake Technical High School
 " Chicago, Lane Technical High School
 " Chicago Junction, High School
 " Granite City, Commonwealth Steel Co's Fellowship
 School

Kansas—	Pittsburgh, High School
"	Horton, High School
Massachusetts—	Boston, Mechanics Arts High School
"	Boston, Y. M. C. A.
"	Boston, Franklin Union
"	Boston, Wentworth Institute
"	Cambridge, Ringe's Technical High School
"	Fitchburg, Technical High School
"	Quincy, Fore River Ship Building Company Apprentice School
"	Quincy, Industrial School
"	North Chelmsford, Technical High School
"	West Lynn, General Electric Company's Apprentice School
"	Worcester, Y. M. C. A. Class
Michigan—	Detroit, Central High School
"	Ishpeming, Manual Training School
"	Lansing, Y. M. C. A. Class
Minnesota—	Duluth, Y. M. C. A. Class
"	Minneapolis, Y. M. C. A. Class
Missouri—	St. Louis, Y. M. C. A. Class
Nebraska—	Omaha, Y. M. C. A. Class
New Jersey—	Jersey City, Dickinson High School
"	Jersey City, Evening Technical High School
"	Newark, Technical High School
New York—	Buffalo Y. M. C. A. Class
"	Buffalo Technical High School
"	N. Y. City, Stuyvesant High School
"	Rochester, Mechanics Institute
"	Rochester, College of Locomotive Building
Ohio—	Cleveland, Y. M. C. A. Class
"	Dayton, Y. M. C. A. Class
"	Youngstown, Y. M. C. A. Class
Pennsylvania—	Erie, Y. M. C. A. Class
"	Lebanon, Y. M. C. A. Class
"	Pottstown, Y. M. C. A. Class
"	Tyrone, Y. M. C. A. Class
Washington—	Seattle, Y. M. C. A. Class
Wisconsin—	Racine, Y. M. C. A. Class

TABLE VIII

1909-1910	
No. of lecture and entertainment courses	24
Total No. of engagements	231
Concerts and entertainments	24
Lectures	207
1910-1911	
Courses	72
Total engagements	353
Concerts and entertainments	72
Lectures	281
1911-1912	
Courses	98
Total engagements	421
Concerts and entertainments	118
Lectures	306
1912-1913	
Courses	158
Total engagements	874
Concerts and entertainments	305
Lectures	569
1913-1914	
Courses	202
Total engagements	1169
Concerts and entertainments	487
Lectures	682

GROWTH OF LECTURE DEPARTMENT SERVICE
1909 TO 1914

TABLE IX

List of Social Center Bulletins Distributed

	No. of copies
An Introductory Statement, prepared by this Bureau.....	2,350
The Social Center,—The Means of Common Understanding, by Woodrow Willson	2,400
Co-operation of the National Education Association, by Carroll G. Pearse	2,000
Lessons Learned in Rochester, by George M. Forbes.....	2,350
Motion Pictures and the Social Center, by John Collier.....	2,000
Present Conditions Which Demand Social Center Development, by Walter T. Sumner	1,650
The Rural Awakening, by Herbert Quick.....	2,850
The Schoolhouse as Branch Public Library, by C. E. McLenegan	2,000
Schoolhouse as Reference Bureau, by Charles McCarthy.....	2,000
Schoolhouse as Local Art Gallery, by Mrs. M. F. Johnstone....	2,000
Schoolhouse as Recreation Center, by Clarence Perry.....	2,000
Schoolhouse as Local Health Office, by George B. Young.....	2,000
Social Center and the Farmer's Home, by P. V. Collins.....	2,000
Social Center Movement, by Josiah Strong.....	2,400
Social Center Movement in Minnesota, by Mrs. Mary Stark- weather	2,000
The Civic and Social Center of the Community by this Bureau	1,350
Total number of bulletins distributed.....	33,350

FIELD CLASS GROUPS
District 1, 1912-1913

Subject	City	Meeting Place	Class Hour	Class membership	Teacher
Accounting Principles	Milwaukee	Extension Rooms...	7:30	15	Mr. Averill
Accounting Principles	Milwaukee	Extension Rooms...	7:30	6	Mr. Averill
Accounting Principles	Racine	High School	8:00	8	Mr. Averill
Bookkeeping	Milwaukee	Extension Rooms...	7:30	10	Mr. Averill
Bookkeeping	Milwaukee	Extension Rooms...	7:30	10	Mr. Averill
Bookkeeping	Watertown			20	Mr. Averill
Bookkeeping	Racine	High School	8:00	13	Mr. Averill
Cost Accounting	Racine	Extension School	7:30	10	Mr. Averill
Engineering	S. Milwaukee	Public School	8:00	13	Mr. Winning
English Composition	Ft. Atkinson	Harold's Pub Co.	7:30	20	Mr. Beatty
Gas and Oil Engines	Milwaukee	Public Museum	7:30	19	Mr. Smith
Law of Private Corporations	Racine	Public Library	8:00	18	Mr. Janecky
Law of Sales	Milwaukee	Public Library	8:00	19	Mr. Bartlett
Mathematics and Drawing	Ft. Atkinson	High School	7:30	27	Mr. Winning
Mathematics and Drawing	West Allis	Kempsmith's	12:00	9	Mr. Winning
Mathematics, Drawing and Engineering	Milwaukee	Cutler-Hammer Co.	8-12	10	Mr. Winning
Mathematics, Drawing and Engineering	Milwaukee	Cutler-Hammer Co.	8-12	10	Mr. Winning
Medical Lectures	Milwaukee	Public Museum	8:00	59	Mr. Bunting
Medical Lectures	Milwaukee	Public Museum	8:00	39	Mr. Pierce
Plant Management	Milwaukee	Public Museum	8:00	37	Mr. Schumacher
Plant Management	Racine	Public Library	8:00	40	Mr. Mable
Retail Selling	Racine	Public Library	7:30	49	Mr. Neystrom
Retail Selling	Stoughton	Public Library	8:00	12	Mr. Neystrom
Shakspere	Milwaukee	Public Library	8:00	33	Mr. Beatty
Social Betterment	Milwaukee	Public Library	8:00	28	Mr. Gillin
Social Service	Milwaukee	Public Library	8:00	48	Mr. Gillin, Miss Alexander

District 2, 1912-1913

Accounting Principles	Appleton	Actual Business College	7:30	18	Mr. Treleven
Accounting Principles	Green Bay	City Library	7:30	12	Mr. Treleven
Accounting Principles	Manitowoc	Training School	8:00	23	Mr. Treleven
Bacteriology and Medicine	Oshkosh	Chamber of Commerce	8:00	65	Mr. Ravenel
Bookkeeping	Appleton	City Library	7:30	12	Mr. Treleven
Bookkeeping	Green Bay	City Library	7:30	7	Mr. Treleven
Bookkeeping and Accounting	Fond du Lac	Y. M. C. A.	7:30	29	Mr. Treleven
Cost Accounting	Oshkosh	Extension Rooms	7:30	9	Mr. Treleven
Engineering	Kaukauna	Y. M. C. A.	7:30	5	Mr. Meredith
Pharmacy Practice	Oshkosh	High School	7:30	17	Mr. Langenhahn
Engineering	Oshkosh	Extension Rooms	7:30	10	Mr. Meredith
Immunity from Disease	Appleton	Public Library	8:00	28	Mr. Ravenel
Gas and Oil Engines	Appleton	High School	7:30	14	Mr. Meredith
Gas and Oil Engines	Oshkosh	Extension Rooms	7:30	20	Mr. Meredith
Gas and Oil Engines	Sheboygan	High School	8:00	11	Mr. Meredith
Gas and Oil Engines	Two Rivers	High School	7:30	20	Mr. Meredith
Shop Mathematics	Oshkosh	Extension Rooms	7:30	10	Mr. Meredith
Shop Sketching	Appleton	Public Library	7:30	12	Mr. Meredith
Shop Sketching	Fond du Lac	Y. M. C. A.	7:30	19	Mr. Hargrave
Shop Sketching	New Holstein	John Lawson Company	7:30	10	Mr. Hargrave
Shop Sketching	Oconto Falls	High School	7:30	5	Mr. Meredith
Shop Sketching	Oshkosh	Extension Rooms	8:00	18	Mr. Meredith
Shop Sketching	Shawano	High School	7:45	5	Mr. Meredith
Sociology	Fond du Lac	Grafton Hall	7:30	29	Mr. Melville
Sociology	Oshkosh	Extension Rooms	8:00	17	Mr. Melville
Wood Sketching	Oshkosh	Extension Rooms	7:30	8	Mr. Meredith
Wood Sketching	Sheboygan	Public Library	7:30	13	Mr. Meredith

FIELD CLASS GROUPS

District 3, 1912-1913

Subject	City	Meeting Place	Class Hour	Class Membership	Teacher
Bookkeeping.....	La Crosse....	Extension Rooms...	7:30	7	Mr. Roseman
Bookkeeping and Cost Finding for Printers	La Crosse....	Extension Rooms...	8:00	7	Mr. Roseman
Electricity and Magnetism.....	Black River Falls.....	High School.	7:30	4	Mr. Farley
Electricity and Magnetism.....	La Crosse....	Extension Rooms...	7:30	12	Mr. Faber
Electricity and Magnetism.....	Merrillan....	High School.....	7:30	9	Mr. Logue
Elementary English...	La Crosse....	Extension Rooms...	7:30	8	Mr. Roseman
Law of Contracts...	La Crosse....	Extension Rooms...	8:00	13	Mr. Schlabbach
Law of Private Corporations.....	La Crosse....	Extension Rooms...	8:00	5	Mr. Schlabbach
Plumbing.....	La Crosse....	Extension Rooms...	7:30	8	Mr. Faber
Retail Selling.....	La Crosse....	Extension Rooms...	8:00	10	Mr. Roseman
Shop Mathematics....	La Crosse....	Sta-Rite Engine Co.	5:00	7	Mr. Faber
Shop Mathematics....	La Crosse....	Extension Rooms...	7:30	10	Mr. Faber
Shop Mathematics and Drawing.....	Sparta.....	High School.....	7:30	7	Mr. Faber
Shop Sketching.....	La Crosse....	Extension Rooms...	7:30	12	Mr. Faber

District 4, 1912-1913

French.....	Superior.....	Paine, Weber Office.	8:00	15	Mr. Romieux
Law of Commercial Paper.....	Superior.....	Commercial Club...	8:00	21	Mr. Hudnall
Pharmacy.....	Superior.....	Commercial Club...	7:30	10	Mr. Leuders
Retail Selling.....	Duluth.....	Commercial Club...	7:30	170	Mr. Fiske
Retail Selling.....	Superior.....	Floan and Leverco's Store.....	7:30	22	Mr. Close
Retail Selling and Store Management...	Ashland.....	City Hall.....	7:30	15	Mr. O'Connor
Shop Mathematics....	Ashland.....	City Hall.....	7:30	19	Mr. Johnson
Telephony.....	Superior.....	Wisconsin Telephone Company.....	7:30	7	Mr. Johnson
University Algebra..	Superior.....	City Hall.....	8:00	6	Mr. Johnson

District 5, 1912-1913

Bookkeeping.....	Wausau.....	Extension Rooms...	7:30	16	Mr. Day
Elementary English...	Wausau.....	Extension Rooms...	7:30	9	Mr. Sullivan
Lumber Measure'm'ts	Marshfield...	City Hall.....	7:30	14	Mr. Edwards
Gas and Oil Engines...	Wausau.....	Extension Rooms...	7:30	8	Mr. Edwards
Money and Banking...	Wausau.....	Extension Rooms...	8:00	12	Mr. Hamilton
Retail Selling.....	Grand Rapids	Johnson & Hall Co.	7:30	33	Mr. Hamilton
Retail Selling.....	Wausau.....	Extension Rooms...	7:30	21	Mr. Neystrom
Shop Drawing.....	Wausau.....	Extension Rooms...	7:30	8	Mr. Edwards
Shop Mathematics....	Grand Rapids	City Hall.....	7:30	10	Mr. Edwards
Shop Mathematics....	Merrill.....	High School.....	7:30	8	Mr. Edwards
Shop Mathematics....	Wausau.....	Extension Rooms...	7:30	13	Mr. Edwards
Telephony.....	Wausau.....	Extension Rooms...	7:30	7	Mr. Edwards

FIELD CLASS GROUPS

District 1, 1913-1914

Subject	City	Meeting Place	Class Hour	Class membership	Teacher
Accounting Principles	Milwaukee...	Extension Building.	7:30	27	Mr. Kuchenmeister
Accounting Principles	Milwaukee...	Extension Building.	7:30	10	Mr. Kuchenmeister
Accounting Principles	Racine.....	Public Library.....	7:30	11	Mr. Kuchenmeister
Bookkeeping.....	Milwaukee...	Extension Building.	7:30	13	Mr. Kuchenmeister
Bookkeeping.....	Milwaukee...	Extension Building.	8:00	9	Mr. Kuchenmeister
Contemporary Literature.....	Milwaukee...	Public Library.....	7:30	70	Mr. Beatty
Cost Accounting.....	Milwaukee...	Extension Building.	7:30	13	Mr. Kuchenmeister
Gas and Oil Engines..	Port Washington.....	High School.....	7:30	13	Mr. Roberts
Public Speaking.....	Milwaukee...	Extension Rooms...	7:30	13	Mr. Buechen
Refrigeration.....	Milwaukee...	Extension Rooms...	7:30	20	Mr. Roberts
Refrigeration.....	Milwaukee...	Extension Rooms...	7:30	16	Mr. Roberts
Shop Mathematics, Drawing, and Engineering.....	Milwaukee...	Cutler-Hammer Co.	8:00 to 12:00 A. M.	15	Mr. Winning
Shop Mathematics, Drawing, and Engineering.....	Milwaukee...	Cutler-Hammer Co.	8:00 to 12:00 A. M.	9	Mr. Winning

District 1, 1913-1914

Spanish.....	Milwaukee...	Extension Building.	7:30	21	Mr. Reed
Water and Insect Borne Diseases.....	Milwaukee...	Milwaukee Medical Society.....	8:00	36	Mr. Ravenel
Watt-hour Meters....	Milwaukee...	T.M.E.R. & L.Co...	8:00 to 10:00 P. M.	28	Mr. Winning

District 2, 1913-1914

Accounting Principles	Appleton.....	Actual Business College.....	7:45	8	Mr. Langmas
Accounting Principles	Berlin.....	Public Library.....	7:30	15	Mr. Langmas
Accounting Principles	Green Bay...	Howe School.....	7:45	15	Mr. Langmas
Accounting Principles	New London.	City Hall.....	7:30	11	Mr. Langmas
Accounting Principles	Oshkosh.....	Extension Rooms...	7:30	20	Mr. Langmas
Accounting Principles	Sheboygan...	High School.....	7:30	17	Mr. Langmas
Accounting Principles	Waupun.....	High School.....	8:00	12	Mr. Langmas
Boilers.....	Fond du Lac.	High School.....	7:30	18	Mr. Elliott
Cost Accounting.....	Appleton....	Actual Business College.....	7:45	20	Mr. Langmas
Cost Accounting.....	Menasha.....	High School.....	7:30	7	Mr. Langmas
Cost Accounting.....	Oshkosh.....	Extension Rooms..	7:30	5	Mr. Langmas
Credits and Collections.....	Green Bay...	Public Library.....	7:45	9	Mr. Langmas

FIELD CLASS PROGRAM

District 2, 1913-1914

Subject	City	Meeting Place	Time Hour	Days Per Week	Teacher
Gas and Oil Engines	Berlin	Public Library	8:00	1	Mr. Elliott
Gas and Oil Engines	Wendell	High School	8:00	1	Mr. Elliott
Gas and Oil Engines	Vernon	High School	8:00	1	Mr. Elliott
Gas and Oil Engines	Shelburne	Industrial School	8:00	1	Mr. Elliott
Law of Sales	Ashland	Extension Rooms	8:00	1	Mr. Elliott
Power Plant Machinery	Franklin	High School	8:00	1	Mr. Elliott
Problems of City and Rural Life	Wendell	High School	8:00	1	Mr. Westgate
Problems of City and Rural Life	Kalamazoo	Training School	8:00	1	Mr. Westgate
Problems of Population	Franklin	Extension Rooms	8:00	1	Mr. Westgate
Retail Selling	Franklin	High School	8:00	1	Mr. Westgate
Retail Selling	Kalamazoo	High School	8:00	1	Mr. Westgate
Retail Selling	Kalamazoo	Extension Rooms	8:00	1	Mr. Westgate
Retail Selling	Wendell	High School	8:00	1	Mr. Westgate
Retail Selling	Franklin	Extension Rooms	8:00	1	Mr. Westgate
Shop Mathematics and Drawing	Franklin	High School	8:00	1	Mr. Westgate
Shop Mathematics and Drawing	Kalamazoo	High School	8:00	1	Mr. Westgate
Shop Mathematics and Engineering	Franklin	Extension Rooms	8:00	1	Mr. Westgate
Teaching Problems	Franklin	High School	8:00	1	Mr. Westgate
Teaching Problems	Wendell	High School	8:00	1	Mr. Westgate

District 3, 1913-1914

Accounting Principles	La Crosse	Extension Rooms	7:30	6	Mr. Kowarsky
Chemistry	La Crosse	State Normal School	4:00	1	Mr. Kowarsky
Chemistry	La Crosse	State Normal School	7:30	1	Mr. Kowarsky
Drawing and Engineering	La Crosse	Extension Rooms	7:30	1	Mr. Faber
Dynamics	La Crosse	Extension Rooms	7:30	1	Mr. Faber
Electricity and Magnetism	Black River Falls	High School	7:30	1	Mr. Farley
Electricity and Magnetism	Merrill	High School	7:30	1	Mr. Faber
Gas and Oil Engines	La Crosse	Extension Rooms	7:30	1	Mr. Faber
Law of Commercial Paper	La Crosse	Extension Rooms	7:30	1	Mr. Schlabbach
Money and Banking	La Crosse	Y. M. C. A.	7:30	1	Mr. Trent
Retail Selling	La Crosse	Extension Rooms	7:30	1	Mr. Field
Shop Drawing	Viroqua	High School	7:30	1	Mr. Ottum
Shop Mathematics	La Crosse	Extension Rooms	7:30	1	Mr. Field

District 4, 1913-1914

Bookkeeping	Ashland	City Hall	7:30	12	Mr. Stoehr
City Problems in Social Welfare	Superior	Commercial Club	8:00	11	Mr. Burt
Electricity and Magnetism	Ashland	City Hall	8:00	15	Mr. Weaver
Electricity and Magnetism	Superior	High School	8:00	18	Mr. Weaver
Gas and Oil Engines	Superior	High School	8:00	11	Mr. Weaver
Elementary English	Ashland	City Hall	7:30	14	Mr. Withers
Elementary English	Moquah	School House	7:30	22	Mr. Duffy

FIELD CLASS GROUPS

District 4, 1913-1914—Continued

Subject	City	Meeting Place	Class Hour	Class membership	Teacher
Gas and Oil Engines..	Bayfield	Office of H.C.Hales.	8:00	15	Mr. Weaver
Gas and Oil Engines..	Washburn....	Commercial Club ..	8:00	15	Mr. Weaver
Gas and Oil Engines..	Ashland	City Hall.....	8:00	26	Mr. Weaver
German	Superior	High School.....	7:30	14	Miss Hawley
Law of Commercial Paper.....	Ashland	City Hall.....	7:30	14	Mr. Dillon
Law of Private Corporations.....	Superior.....	U. S. Nat'l Bank....	8:00	14	Mr. Hudnall
Retail Selling.....	Superior.....	High School.....	8:00	109	Mr. Close
Retail Selling.....	Washburn....	Public Library.....	8:10	10	Mr. O'Connor

District 5, 1913-1914

Accounting Principles	Wausau.....	Extension Rooms...	7:30	7	Mr. Ingham
Bookkeeping.....	Wausau.....	Extension Rooms...	7:00	13	Mr. Ingham
Gas and Oil Engines..	Wausau.....	Extension Rooms...	7:30	6	Mr. Mitchell
Law of Sales.....	Wausau.....	Extension Rooms...	7:30	9	Mr. Rosenberg
Mathematics.....	Wausau.....	Extension Rooms...	9:00	7	Mr. Edwards
Mathematics, Draw'g and Engineering...	Antigo.....	City Hall.....	7:30	12	Mr. Mitchell
Mathematics, Draw'g and Engineering...	Grad Rapids	City Hall.....	7:30	12	Mr. Edwards
Mathematics, Draw'g and Engineering...	Marshfield...	City Hall.....	2:30	16	Mr. Edwards
Mathematics, Draw'g and Engineering...	Merrill.....	City Hall	11:30	16	Mr. Mitchell
Mathematics, Draw'g and Engineering...	Merrill.....	City Hall	7:00	23	Mr. Edwards
Mathematics and Engineering.....	Stevens Pt...	Public Library.....	7:30	8	Mr. Mitchell
Mathematics and Engineering.....	Wausau.....	Extension Rooms...	7:00	28	Mr. Edwards
Retail Selling.....	Merrill.....	City Hall.....	8:00	21	Mr. Field
Retail Selling.....	Neillsville...	High School.....	7:45	26	Mr. Field
Retail Selling.....	Stevens Pt...	City Hall.....	8:00	26	Mr. Field
Retail Selling.....	Thorp.....	High School.....	7:30	7	Mr. Hamilton
Shop Drawing.....	Wausau.....	Extension Rooms...	7:00	12	Mr. Edwards
Window Trimming...	Wausau.....	Extension Rooms...	8:00	10	Mr. Mitchell

District 6, 1913-1914

Electricity & Magnetism.....	Eau Claire...	Extension Office....	7:00	9	Mr. Hobbs
Gas & Oil Engines...	Baldwin	High School.....	7:00	24	Mr. Hobbs
Gas & Oil Engines...	Eau Claire...	Extension Office....	7:00	15	Mr. Hobbs
Gas & Oil Engines...	Ladysmith...	Training School....	7:00	19	Mr. Hobbs
Gas & Oil Engines...	Rice Lake	Public Library.....	7:00	16	Mr. Hobbs
Labor Problems	Eau Claire...	Union Hall.....	8:30	4	Mr. Ames
Law of Commercial Paper.....	Eau Claire...	Public Library.....	7:30	10	Mr. Doolittle
Mathematics.....	Eau Claire...	Extension Rooms...	7:30	6	Mr. Hobbs
Mathematics & Engineering.....	Stanley	City Hall.....	7:00	4	Mr. Hobbs
Retail Selling.....	Eau Claire...	Library.....	7:30	42	Mr. Field
Retail Selling.....	Stanley	City Hall.....	7:00	20	Mr. Field
Retail Selling & Store Management.....	Eau Claire...	Library.....	7:30	20	Mr. Field

REPORT OF THE DEAN OF WOMEN

*President Charles R. Van Hise,
The University of Wisconsin,*

Dear Sir: I beg leave to submit herewith my report as Dean of Women for the biennium ending October 1, 1914. During that time the staff of this department of University administration has been increased because of the more complete organization which has been brought about during the past four years, and also because the work of the department has grown in a direct ratio to the increase in the number of women students registered in the University. In order that this increase may be made as clear as possible the registration for the last four years should be compared.

Number of Women Students in the regular sessions:

In 1911-12	1165
In 1912-13	1205
In 1913-14	1328

The Summer Session has increased likewise until the summer of 1913 there were registered in the University 858 women students, 688 of whom were not in the regular session. From the beginning of Summer Session June, 1913, to the beginning of Summer Session, 1914, counting but the regular session and the Summer Session, the total number of women students under the care of this office was 2016.

In the year 1913-14 these students were classified as follows:

	In Regular Session	In Summer Session	Total
(Not including duplicates)			
Letters & Science.....	860	342	1,202
Agriculture (Home Economics).....	212	58	270
Medicine.....	2	0	2
Law.....	6	1	7
Engineering.....	0	1	1
Music.....	90	8	98
Pharmacy.....	1	0	1
Library.....	28	0	28
Short Course.....	0	0	0
Graduate Students.....	129	278	407
	1,328	688	2,016

An approximate idea of the distribution of the young women as to residence may be obtained from the following figures which are for October 1, 1913:

In Chadbourne Hall.....	117
in Barnard Hall.....	137
in sorority houses.....	200
in lodging houses and private families.....	456
in own homes, or with relatives.....	332
	<hr/> 1,242

ORGANIZATION

The care of this whole body of young women falls upon this office, the staff of which at the present time consists of:

The Dean of Women, The Mistress of Chadbourne Hall, The Mistress of Barnard Hall, one full time assistant, one half time assistant, a secretary.

Exactly the character and scope of the work which each member of the staff undertakes will be given later in this report. Since the last biennial report was submitted, the Dean of Women and her staff have developed considerably the organization and (it is hoped) the influence of the work among the women students. The principles upon which this organization and work have been undertaken are three: first, the endeavor to do all that can be done to develop the possibilities of women's education in this coeducational institution; second, to secure to the women students the highest possible individual development,—intellectual, moral, spiritual, and social; third, to develop in these women students the highest social responsibility,—to the family, the civic community, the economic group, and the state. These purposes are far from being achieved; but the work of the department has nevertheless aimed at realizing this distant vision. With these ideals in mind, the organization for their accomplishment has fallen into three departments,—those of administration, of academic duties, and of social duties.

I. ADMINISTRATION

Along the lines of administration the work of the Dean of Women is that of helping where she may to shape University policy, especially where women students are concerned. The principal ways in which this aid is rendered are:

1. Participation in the work of regular faculty committees, of five of which the Dean of Women is a member:

- a. The Executive Committee of Student Advisers in the Col-

lege of Letters and Science, which meets weekly; and in the College of Agriculture, with which she meets only two or three times a year, since the Director of the Course in Home Economics keeps in very close touch with that work.

b. The Committee on Student Life and Interests, which has just been organized, and of which she is assistant chairman.

c. The Lathrop Hall Committee, which has charge of the administration of the social side of Lathrop Hall. The work of this committee is shown in the pamphlet of rules governing Lathrop Hall.

d. The Committee on Discipline, which takes up the cases of dishonesty in University work, in cases where women are concerned.

e. The Committee on Appeals, in cases in which women are concerned.

Besides these committees on which the Dean of Women herself serves, the Mistress of Chadbourne Hall serves on the Committee of Loans and Scholarships in place of the Dean of Women. An assistant to the Dean of Women serves on the Committee of Time Tables in place of the Dean of Women. Doctor Morris, the Medical Adviser for Women, has served on the Committee on Hygiene in place of the Dean of Women.

2. Work on special committees. For instance:

a. The Committee on the Relations between the Library School and the College of Letters and Science, which met frequently for one month in the fall.

b. The special committee on Extra Curricular Activities, which had frequent meetings for three months during the winter.

Besides these, the Dean of Women has served as an elective member of the Regent-Faculty Conference. She also meets occasionally with the heads of the women's organizations; with the Pan Hellenic Association three or four times in the year; with the house mothers of sorority houses as often as occasion may arise; with the Self Government Association Board four times last year.

In addition the Dean of Women makes special addresses and gives informal talks before smaller groups of students—the seniors, the juniors, the sophomores, the freshmen, the King's Daughters (an Episcopal organization), Castalia Literary Society, etc.

Under her direction also are:

1. The Vocational Conference; 2. The Vocational Guidance (where but small beginnings have been made); 3. The oversight of the lodging houses; 4. The employment office for students needing work, and loans and scholarships made to undergraduate girls. This side of administration is divided as will be shown later among her assistants.

II. ACADEMIC DUTIES

1. The academic duties of the Dean of Women overlap in some places on the administration noted above. For instance, the work of the Executive Committee of Student Advisers in the College of Letters and Science, as well as in the College of Agriculture, is very largely academic, although some of it is also administrative. Because of her membership on these committees, all the girls who are not doing satisfactory work for any reason must report to the office of the Dean of Women;—the seniors, juniors, sophomores, and graduate students to the Dean of Women herself, the freshmen to her assistant, Miss Lily B Campbell, who is also instructor in English. To the office of the Dean of Women are reported absences, delinquency in back work, requests for dropping work, and requests to do more than sixteen hours of work. The Dean of Women and her assistant go over the cases and report them to the appropriate college. In this field there lies a very large amount of work, which requires both delicacy and a wide knowledge of University problems.

2. The Dean of Women teaches in the History Department, giving one course three hours a week. The second semester of 1913-14 she did not give this course, but prepared a new one, which is being given this year (1914-15). She also had a group of students (8) doing their senior theses in History, whom she had at least two hours each week throughout the year in conference. Besides this work, she serves on special committees in the History Department from time to time, as they may be required, and attends the departmental meetings of that department. She is in constant touch with the department at all times.

For Miss Campbell's academic work see a later note.

III. SOCIAL DUTIES

On the social side:

The Dean of Women meets the freshmen and returning students for seven hours a day, during the days of registration, and has tried various plans for meeting other students at the beginning of the year.

She is present at the student functions for welcoming new students, and gives constant aid to junior girls, and to the Young Women's Christian Association, in their work of advising freshmen.

On Thursdays, from November to May, she was at home last year to the women in the lodging houses, taking two houses a week, from 4:30 to 6 o'clock, serving tea and meeting them socially. This year she is at home on Thursday afternoons in Lathrop Hall from November to the Easter recess to every woman student who may care to come.

Once a year she gives a luncheon for the heads of the women's organizations, and from time to time she gives dinners and luncheons to University guests, such as deans of women from other universities. These expenses are paid out of her salary; last year they amounted to more than two hundred dollars. She also dines with students in the halls, at the sorority houses, and at the boarding houses, upon invitation, as time and strength permit. She is usually at every sorority house and boarding house once a year at least. When girl students give entertainments she is asked to receive, and does so as far as her strength permits. She is called upon constantly for social duties which she finds herself unable to meet by limitations of hours of the day, and days of the week.

In addition to this, it should be noted that the Dean of Women is in constant communication during the college year with the Medical Adviser, with the Department of Physical Education, with the advisers of students, and by letter with parents, in order that the underlying principles mentioned at the beginning of this report may be carried out. She does not receive from parents such co-operation as she could wish; many of the letters remain unanswered, in spite of the time and care with which they are composed.

The office falls far short of its purposes, as must any office

where high ideals are maintained, but so far as your Dean of Women knows, there is no office in a state university which undertakes and accomplishes as much work for students as does this office. This statement is based upon the reports made of conferences of deans of women of state universities, held biennially in Chicago in December of the odd years—1911–1913–1915, etc., as well as by conferences with individual deans who have visited this office. The work requires much informality, inasmuch as there is great delicacy required in much of its work; it should have more clerical assistance than it has been able to command in the past, as well as a highly paid executive secretary, who could carry on efficiently the correspondence and duties which demand attention during the summer month. This need has become more apparent with the increasing complexity of administering the halls of residence so as to give to Wisconsin girls preference in assignment of rooms.

Following is a statement of the work of the definite members of the department for 1913–14, exclusive of the Dean of Women:

Miss Katharine S. Alvord, Mistress of Chadbourne Hall. In charge of the Vocational Conference, in charge of the Vocational Guidance, in charge of the Loans and Scholarships, in charge of the employment work.

Miss Lily B. Campbell, in charge of the freshman girls, in charge of Lathrop Hall, instructor of English three hours a week.

Mrs. L. M. Vandervort, Mistress of Barnard Hall (1913–14), in charge of the home nursing lectures and demonstrations in the Home Economics Department.

Mrs. Grace H. Keller, half time assistant from March 1 to June 15, 1914, in charge of the lodging house inspection, etc.

WOMEN STUDENTS' ORGANIZATIONS

With regard to the women's organizations it is necessary to say but little in addition to what was set forth in the last biennial report. The Self Government Association is becoming yearly more efficient. Its judiciary committee, which is founded upon very simple lines, has had but few cases brought before it, and those cases have been dealt with only by reprimand. The Self Government Association has become a powerful instrument in shaping and enforcing public opinion. It has been found almost

unnecessary to go beyond a reprimand in order to keep the standard of the social life among the girls up to what one has a right to expect in this community.

The chairmen of the lodging houses and the Self Government Association representative in each of the sorority houses are coming to feel more keenly the importance and responsibility of their position. The situation is not yet ideal, but it is improving year by year. The life in the two halls, Chadbourne and Barnard, proceeds along the lines of healthy, high-minded life among those groups. Miss Alvord, who was mistress of Chadbourne Hall for five years, did much to make Chadbourne Hall one of the great centers of the student life among the girls. Mrs. Flett, who this fall takes Miss Alvord's place, is a graduate of the University, and will certainly carry on even farther the work which Miss Alvord began. Miss Mason, who has come this year to Barnard Hall will undertake to work along the same lines as have been followed in Chadbourne Hall. It is unfortunate that there is no parlor in Barnard Hall large enough to accommodate all the young women for a house meeting, but the parlor of Lathrop Hall is available for that purpose on alternating Tuesday evenings and thus the difficulty is in part overcome.

LATHROP HALL

Lathrop Hall itself is coming to be used by the young women more and more, and to be considered by them as the center of their social life. With the removal of the Home Economics Department to their own building the fifth floor is available during the day time for the Department of Physical Education, and in the evening for the use of the women students. On Friday evenings two of the literary societies will hold their meetings there, and the rooms will be available on Saturday evenings for informal gatherings of women students—committees, small organizations of girls, etc. Your Dean of Women is, as has been said, at home in the tea room of this hall on Thursday afternoons from the first of November to the Easter vacation for any young women who choose to come in for a cup of tea. The parlor is available to the young women for receiving their callers on Wednesday and Sunday evenings. The hall has not yet reached the limit of its availability for the women students, but each year sees its use increased and the fact of its possession better appre-

ciated. By making the dining-room into a large cafeteria and using the old cafeteria for luncheons, dinners, etc., given by organizations, the use of the hall is still further extended and varied.

SUMMER SESSION

During the past two years the Summer Session has come to be almost a regular part of the academic year. The Director of the Summer Session has cordially assisted in making possible the continuity of policy regarding women students throughout the entire year. To this end there has been appointed a Dean of Women for the Summer Session, who has also been head of Chadbourne Hall. For the past two years this position has been held by Miss Winifred Robinson, now Dean of the newly founded Women's College of Delaware. For two summers Barnard Hall has been open to summer students, and a head of this hall has been provided. In the summer of 1914 Miss Martha Doan, instructor in Chemistry in Vassar College, held this position. The work of the two years has made it possible to provide in the Summer Session the segregation of women students in lodging houses just as has been done throughout the year. There have also been house committees in the halls, and house rules, somewhat simplified over those enforced in the regular session. The Student Interests' Committee has carried its work through the Summer Session, and the Dean of Women for the Summer Session has been *ex-officio* one of its members. Thus the work of the Summer Session has been brought into line with what your Dean of Women undertakes to do throughout the year; the result has been considerably to strengthen the work of her office.

FUTURE NEEDS

The immediate future needs for the women students seem to your Dean of Women not numerous, yet somewhat imperative. It is with reluctance that they are brought forth, since anyone acquainted with the situation realizes how unusually generous the State of Wisconsin has been in providing accommodations and administration for its women students. It is, perhaps, just because so much has been done that a little more seems of such importance.

The first need is that of a co-operative house, such as is administered in Wellesley and Smith Colleges, and in Northwestern University. In such a house the young women who reside within its walls might work from an hour to an hour and a half a day, thereby reducing very materially their expenses. It is almost impossible for us to open such a house unless the building itself were a gift. Rents are so high in Madison that that item alone would preclude its success if the enterprise were to be carried on in a rented house. If a building could be put up by the state in which the rooms could be rented at a minimum, and where the supervision could be under the Department of Home Economics the house might be made to subserve a triple purpose—that of cutting down the expenses of a group of sixty girls, of rendering possible another sort of laboratory for the Home Economics Department, and of caring for a group of girls who either do not come to the University, or undertake to work for their room and board under circumstances which are not always the most healthful or stimulating. Such a house should accommodate about sixty students, should pay its own expenses, and cut down for each student so housed the expenses per year for room, board, and laundry to less than \$150. This statement is made on the basis of what has been done at Northwestern University, where Dean Potter has made the plan a great success.

The second need which your Dean of Women wishes to have considered is the separation of the Department of Physical Education for women from that of the men. The end, aim, and work of physical education for women are not the same as those for men. The tendency among young women—in a coeducational university, as it is also in a woman's college,—is to develop sports and games along the lines of men's sports and games, whereas many physical directors, physicians, and administrators believe that the possibility of developing sports and games for women along quite different lines has not yet been in the least realized. The Department of Physical Education for Women is in many coeducational institutions a separate administrative department, under a woman as director, and left quite free to develop along its own lines. Your Dean of Women would like to see the matter considered.

Respectfully submitted,

LOIS KIMBALL MATHEWS,

Dean of Women.

REPORT OF THE DIRECTOR OF THE SUMMER SESSION

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: I have the honor to submit to you herewith a brief report of the Summer Session of the University for the biennium July 1, 1912 to June 30, 1914.

It is a pleasure to be able to report that the rapid growth of the Session has continued uninterruptedly, and that both the quality of its work and the character of its student body are steadily improving from year to year. In its early stages the majority of the students were not working for academic credit, there were very few of our own undergraduates enrolled, and only the larger departments of one, later two, colleges were represented. At the present time all the colleges are included, practically all the departments are giving their standard courses, University of Wisconsin undergraduates make up almost one-third of the total enrollment, approximately nine-tenths of the entire student body is working for academic credit, and the group of "preparatory and unclassified special" students, amounting to less than one-tenth of the whole, is apparently decreasing in numbers.

In the Session of 1913 approximately 33½ per cent of the students were graduate students, 57 per cent were regular college undergraduates from our own and other institutions, and 9½ per cent were preparatory and special students. About 52 per cent of the whole number were teachers. It is also gratifying to note in this connection that while our Summer Session naturally appeals more widely to non-residents than the semesters—teachers being free to come to us in the summer—Wisconsin still sends more than one-half of our total enrollment—934

students in 1912, 1076 in 1913. In 1912, 736 students came from 45 other states and 60 from 15 foreign countries; in 1913, 991 from 44 other states and 53 from 15 foreign countries.

Summary of Attendance

	1912	1913
a) By Colleges:		
Letters and Science	1,246	1,557
Engineering	264	188
Law	63	74
Agriculture	217	301
Totals	1,790	2,120
b) By Classes:		
University of Wisconsin graduates	162	247
Other graduates	389	463
University of Wisconsin undergraduates	373	649
Other undergraduates	333	562
Preparatory and unclassified	211	199
Totals	1,790	2,120
c) By States and Foreign Countries:		
From Wisconsin	934	1,076
From other states	736	901
From United States	1,670	2,067
From foreign countries	60	53
Totals	1,790	2,120
d) Teachers:		
College and Normal Instructors	146	186
Superintendents, Principals, and High School In-		
structors	645	627
Other Teachers	141	301
Total Teachers	932	1,114

The temper of the student body as a whole is most excellent; there is an extraordinary degree of purpose and seriousness as well as of ability displayed in their work, and leading faculty men have repeatedly declared that their summer teaching, although arduous, is the most satisfactory of the year as regards results.

THE STAFF

The splendid spirit of our instructional corps in all the colleges, its devotion to the work of the Session and to the interests of the University is worthy of all commendation. In the College of Letters and Science rich programs of lectures, demonstrations, and round tables, embracing the most varied topics of interest, are offered each week, regardless of the fact that no additional remuneration is granted for such work. These lec-

In 1912, 153 men and women, of whom 13 were from other able asset to the Summer Session as a whole.

In 1912, 153 men and women, of whom 13 were from other institutions, composed the instructional staff, an average of one instructor to 11 students. In 1913, there were 161, eight of whom were from without, an average of one instructor to 13 students.

DEGREES CONFERRED

During the biennium degrees were conferred as follows:

	1912	1913
B. A., B. S., Ph. R., Ll. B.....	36	86
M. A., M. S., E. E.....	24	23
Ph. D.....	5	8
Totals.....	65	117

FINANCIAL STATEMENT

	1912	1913
a) Expenditures, by Colleges:		
<i>Cash.</i>		
Letters and Science.....	\$16,986	\$18,554
Engineering.....	4,249	4,651
Law.....	1,200	1,538
Agriculture.....	2,826	3,418
Administration.....	3,326	3,844
Fees refunded.....	398	*
Totals.....	\$28,985	\$32,005
b) Deferred Salaries, Cash Salary Basis, by Colleges:		
Letters and Science (30 instructors).....	\$8,613	\$10,339 (30 Instruct.)
Engineering (1 instructor).....	244	.....
Law (3 instructors).....	1,611	1,250 (2 Instruct.)
Agriculture (1 instructor).....	186	580 (2 Instruct.)
Totals (33 instructors).....	\$10,654	\$12,169 (34 Instruct.)
Estimated Total Expense.....	\$39,639	\$44,174
c) Receipts, by Colleges:	1912	1913
Letters and Science.....	\$18,675	\$22,996
Engineering.....	2,137	2,328
Law.....	1,545	1,755
Agriculture.....	2,917	4,500
Gymnasium fees.....	450	438
Totals.....	\$25,724	\$32,017

* Refunded fees not reported in receipts, as heretofore.

By reason of the very considerable increase in enrollment, the expense of conducting the Session became proportionately less during the biennial period. The estimated total expense per student for 1912 was \$22.90, total receipts per student, \$14.90, hence the actual cost was about \$8 per student. For 1913, the expense amounted to \$20.88, the receipts \$15.10, and the actual cost \$5.78 per student. This includes, of course, no estimate of "overhead charges," but simply the actual expense of instruction and administration as shown in the tables.

In 1913 the cash receipts balanced the cash expenditures for the Session, leaving as a deficit the deferred salaries of 34 instructors—on a cash salary basis, \$12369. This, therefore, represents the total expense to the University of maintaining both a large and flourishing Summer Session, and a satisfactory leave-of-absence system. Thirty-three instructors elected leave of absence instead of cash remuneration in 1912 and 34 in 1913. It should be added, however, that for various reasons—resignation and removal, financial stringency, etc.—faculty members frequently change their plans and surrender their earned leave for cash later on.

THE COLLEGES

The College of Letters and Science gained 431 students, or 36 per cent, during the two years under consideration. On the scholastic side the large departments of English, Education, German, History, and Chemistry are doing the bulk of the work, and are attracting ever increasing numbers of teachers of both our own and other states. Of newer departments Manual Arts and Physical Education showed an excellent development. The art work has been consistently maintained, and a gratifying interest has been shown. It is to be hoped that the professorship in this department will soon be filled by a permanent appointment. The work in Political Economy and Political Science has been in an unsatisfactory condition. The courses needed systematizing and the summer work had been left too much to outsiders. These matters will be corrected. With their new building and equipment the biological departments should now build up rapidly.

The College of Engineering has decreased in enrollment about 15 per cent during the two years. The work, however, is in

excellent hands, the program could not be reduced without crippling it greatly, and I am convinced that the depression—which corresponds to a falling off in numbers during the academic year—is only temporary.

The Law School has increased about 30 per cent, and the men in charge report that the students who begin their law work in the summer—mostly teachers—are the best class of students they receive.

The College of Agriculture has had a wonderful growth of 129 per cent during the two years. The demand was surprisingly great, and we have had to expand the course of study rapidly to meet it. Now practically all the departments are represented, and the best teachers are on the staff. There is a good attendance of agricultural educators from the Middle West and South.

SOCIAL LIFE

The social life of the Summer Session might well serve as a model for that of the academic year. Almost none of the objectionable features develop, and at the same time the students enter with greatest zest into what is offered them. The singing hours, the play hours, the sociables, the band concerts begun in 1913, the festival at the close—all are splendidly attended and very successful. Great credit for these affairs is due to Professors Dykema, Bassett, Jones, Trilling, Elsom, and Mann of our own staff.

VESPER SERVICES

The Sunday evening Vesper Services, inaugurated in 1913, and conducted with the assistance of the Madison Association of Student Pastors and Y. M. C. A. secretaries, has apparently met a real want. From 200 to 400 were in attendance at each service, and the superb natural beauty of the scene lent an effect of genuine grandeur to the simple exercises.

TENTING COLONY

The plan recommended in the last biennial report was attempted in a modest way in 1913 and proved fairly successful as a beginning. I heartily recommend a continuation of it, since

it promises to enable school men with large families and small salaries to attend, who could not pay the prices for room and board demanded in the city.

BATHING FACILITIES

The great crying need of the Summer Session has always been a suitably equipped and well located bathing house and pier for women. The desirable privacy and proper supervision are impossible without it, and with the rapid growth of the Session, the need becomes ever more imperative. I wish to urge once more the necessity for immediate action in this matter.

Respectfully submitted,

S. H. GOODNIGHT,

Director.

REPORT OF THE DEAN OF THE GRADUATE SCHOOL

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: I submit to you herewith my biennial report as Director (subsequently Dean) of the Graduate School for the period ending June 30, 1914. The financial element involved in the maintenance of the Graduate School is not here considered since I am not directly concerned in its administration.

The experience of the past two years has confirmed the impressions set forth in my report of 1912 that the new form of organization for the Graduate School adopted in 1910, while defective in some respects, is nevertheless workable. Some of these defects have indeed been eliminated during the past biennium and I take pleasure in recording here a substantial enlargement of the functions of the Graduate Faculty. By recent action of the Regents, it now exercises over graduate work powers similar to those of the college faculties with reference to undergraduate study. I anticipate that this increased responsibility will produce increased efficiency and increased interest on the part of its members.

Among the more important subjects affecting graduate work that have come before the faculty during this period, I note the following as of special interest since they involve the relations of the University to other similar institutions in matters that have been the subject of much inter-university discussion: Upon the recommendation of the Association of American Universities, the procedure to be followed in the nomination of appointees to fellowships and scholarships has been revised with a view to more prompt exchange of information among co-operating universities. The inconvenience resulting from acceptance by one person of ap-

pointments in two or more universities has in consequence nearly disappeared.

While it is the desire of the Graduate School to conform as nearly as may be to the general lines of practice adopted by other American universities, the Graduate Faculty has not been able to adopt in its entirety the recommendation of the Association of American Universities "That no greater credit be extended by any member of the Association to the diplomas of normal schools and minor colleges than is accorded by the state university of the state in which such institution is located." It appearing that a rigid application of this rule would frequently work hardship in the case of mature candidates who have been many years out of college, the faculty, while sympathizing with the purpose sought to be accomplished, has adopted for its guidance in such cases the following statement: "No consideration will be given to the diplomas of the institutions above described but the Dean and the Graduate Committee will receive and will consider upon their merits, without prejudice upon account of such diploma, application from candidates claiming to possess attainments equivalent to those represented by an approved baccalaureate diploma." This action should be construed in connection with the following statement of practice: It is the policy of The University of Wisconsin to admit to its Graduate School the holders of baccalaureate degrees conferred by reputable colleges, even though their standards of graduation fall below our own. But such admission will be made subject to the following limitations:

A. Admission will not be accorded to graduates of institutions whose requirements for graduation fall more than one year short of the Wisconsin standard.

B. The actual deficiency that exists in any given case must be removed before the candidate receives a second degree either (1) by absolving the specific difference between the Wisconsin baccalaureate and the one in question or (2) through such undergraduate or graduate work in addition to that normally required for the higher degree as may be assigned by the Dean of the Graduate School and the student's major professor acting together.

The policy of permitting candidacy for the Master's degree to be conducted partly *in absentia* has from its inception been regarded as a tentative, one that must be justified by its results.

These results are now sufficiently in evidence to permit at least a provisional judgment in the matter. This judgment, based upon conference with my colleagues who are engaged in giving instruction under the system, is distinctly so favorable to the plan that its continuation and development should be regarded as a normal part of University policy. During the period covered by the present report there has, indeed, been adopted an extension of *absentia* candidacy for a degree that may prove to be of considerable importance, *viz.*, the introduction into graduate work of the accredited farm relation. Under this system, candidates for the M. S. degree pursuing work in agriculture may receive not to exceed one semester's credit for a year's residence and work under supervision upon a farm previously approved by a University officer designated for that purpose. It is expected that such work will be chosen by candidates preparing themselves for the position of farm manager, who desire to secure under favorable conditions experience comparable with that furnished by a hospital or law office to the prospective physician or lawyer. While this work has already been elected by a limited number of candidates, it would be premature to pass judgment at this time upon their success or its value.

In connection with candidacy for the Master's degree "partly in *absentia*" I may also call to your attention the action of the Graduate Faculty whereby all such candidates are advised that the University reserves to itself the right to exact four summer sessions of attendance instead of three in those cases in which the normal amount of *absentia* work proves unduly burdensome to the candidate. A corresponding diminution of the *absentia* work is then made.

The numerical growth of the Graduate School, although subject to considerable fluctuation from year to year, continues substantially as shown in my previous reports. The following table, in continuation of that contained in my report of 1912 (*Biennial Report*, 1912, p. 220) illustrates this growth and supplements that table with an additional element relating to summer session attendance. During the academic year, all graduate students recorded as such in the Registrar's office are brought under my supervision, but this is not feasible during the short summer session and many holders of a baccalaureate degree fail to report to me and are not included in the records of the Graduate School. I therefore give in the following table the

number of graduate summer session students as compiled from the Registrar's records and also from the records kept by the Dean of the Graduate School. The graduate attendance during semesters is classified with respect to the character of the studies pursued, *viz.*, Letters and Science, Engineering, Agriculture. A similar classification of summer session attendance presents some difficulties but in general its distribution does not differ greatly from that of the semester attendance. If we regard as anomalous the exceptionally small number of students registered with the Dean during the unusually hot summer of 1913, it may be inferred from the disparity between the records of the Registrar and the Dean that about one-third of the holders of baccalaureate degrees who attend the summer session have no intent of applying their work toward candidacy for a degree. While properly registered as graduate students, they are essentially transient visitors to the University.

ATTENDANCE OF GRADUATE STUDENTS

Year ending June	SEMESTERS				SUMMER SESSION		
	L & S	Eng.	Agric.	Total	Registrar	Dean	Total
1910.....	224	33	24	281	328	221	471
1911.....	280	39	28	347	367	285	594
1912.....	302	26	49	377	446	326	681
1913.....	302	29	63	394	519	250	603
1914.....	334	18	85	437	689	446	802

The totals given in the last column are based upon the summer session attendance recorded in the Dean's office and are exclusive of names twice counted. The small difference existing between these totals and the sums of the summer and winter attendance shows clearly the different composition of the two bodies. Comparatively few graduate students are in attendance both summer and winter.

A striking feature of the above exhibit is the very rapid growth in the number of graduate students in agriculture. This increase is, however, only in part real and in part is due to inclusion under Agriculture of certain classes of students who in 1910 would have been otherwise classified; e. g. the new departments of plant pathology, agricultural economics, etc. bring under Agriculture students who would formerly have been classified under Letters and Science.

I also submit for your information a continuation of the table (Biennial Report, 1912, p. 221) showing the number of higher degrees conferred in course and the ratio of the number of such degrees to the total graduate enrollment. The total enrollment is for this purpose taken from the records of the Dean's office and the ratios therefore differ slightly from those hitherto based upon the Registrar's records.

Year ending June	Second Degrees		Doctor's Degrees	
	No.	Percent.	No.	Percent.
1910.....	110	23	18	4
1911.....	109	18	23	4
1912.....	139	20	28	4
1913.....	118	20	19	3
1914.....	157	20	31	4

The percentage of degrees conferred continues to show the marked constancy of value noted in my last report but both the number of degrees and the total attendance indicate that the academic year 1913 was one of growth retarded but not long checked, as is shown in the figures for the following year. A similar retardation, perhaps equally temporary, should be anticipated for the coming year in consequence of the increase of tuition fees for non-resident students from \$70 to \$100 per annum.

Very respectfully,
 GEO. C. COMSTOCK,
Dean.

DIRECTORY OF DOCTORS OF PHILOSOPHY

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: I submit to you herewith as a supplement to my biennial report a directory of Doctors of Philosophy of The University of Wisconsin in continuation of the directory published in your biennial report for the years 1904-6. It is impossible to make this directory complete and it must be regarded as representing only such information as is now attainable.

Very truly yours,
GEO. C. COMSTOCK,
Dean.

1907

- FLORENCE E. ALLEN—Instructor in Mathematics, The University of Wisconsin, Madison.
- WILLIAM B. ANDERSON—Assistant Professor of Physics, Iowa State College, Ames, Iowa.
- CARL BECKER—Professor of Modern History, The University of Kansas, Lawrence.
- JOHN L. CONGER—Professor of History, Knox College, Galesburg, Illinois.
- CLARENCE C. CRAWFORD—Assistant Professor of History, The University of Kansas, Lawrence.
- LEWIS FUSSELL—Professor of Electrical Engineering, Swarthmore College, Swarthmore, Pa.
- MARTIN H. HAERTEL—Assistant Professor of German, The University of Wisconsin, Madison.
- LEWIS H. HANEY—Acting Assistant Professor of Political Economy, The University of Michigan, Ann Arbor.
- HENRY L. JANES—Secretary of the American Embassy, Rio de Janeiro, Brazil.
- DAVID R. LEE—Professor of Latin and Greek, Central College, Fayette, Mo.
- WILLIAM G. MARQUETTE—Instructor in Botany, The University of Wisconsin, Madison.
- OTTO PATZER—Assistant Professor of French, University of Washington, Seattle.
- RAYMOND V. PHELAN—Assistant Professor of Political Economy, The University of Minnesota, Minneapolis.

- BENJAMIN M. RASTALL—Civic Secretary, Duluth, Minn.
 GEORGE M. REED—Assistant Professor of Botany, The University of Missouri, Columbia.
 JOSEPH SCHAFER—Professor of History, The University of Oregon, Eugene.
 FREDERICK L. SHINN—Assistant Professor of Chemistry, The University of Oregon, Eugene.
 ROYAL B. WAY—Professor of American History, Beloit College, Beloit, Wis.
 JOHN WEINZIRL—Professor of Bacteriology, The University of Washington, Seattle.

1908

- CHARLES H. AMBLER—Acting Professor of History, Randolph-Macon College, Ashland, Va.
 LAWRENCE W. BURDICK—Professor of Latin and Greek, Alfred University, Alfred, N. Y.
 GUY B. COLBURN—Acting Professor of Latin, Iowa College, Grinnell.
 ALFRED N. COOK—Professor of Chemistry, University of South Dakota, Vermillion.
 EDWARD J. FILBEY—Professor of Greek, The University of Nashville, Nashville, Tenn.
 AMELIA C. FORD—Professor of History, Milwaukee-Downer College Milwaukee, Wis.
 ROBERT W. HEGNER—Instructor in Zoology, The University of Michigan, Ann Arbor.
 ANNA A. HELMHOLTZ (Mrs. R. V. Phelan)—Instructor in English, The University of Minnesota, Minneapolis.
 CLARA P. NEWPORT—Acting Professor of German, Swarthmore College, Swarthmore, Pa.
 FREDERICK W. OSWALD, Jr.—
 ARTHUR R. SEYMOUR—Assistant Professor of Romance Languages, The University of Illinois, Urbana.
 WARREN D. SMITH—Formerly Chief of Division of Geology and Mines, Bureau of Science, Philippine Islands. Professor of Geology, University of Oregon. Eugene.
 JOHN G. THOMPSON—Assistant Professor of Political Economy, The University of Illinois, Urbana.
 CHARLES A. TIBBALS—Assistant Professor of Chemistry, Armour Institute of Technology, Chicago.
 JAMES E. TUTHILL—Assistant Professor of History, Kentucky State University, Lexington.
 CHARLES T. VOORHIES—Professor of Biology, The University of Utah, Salt Lake City.
 HENRY C. WOLFF—Assistant Professor of Mathematics, The University of Wisconsin, Madison.

1909

- ALEXANDER CANCE—Instructor in Economics, Dartmouth College, Hanover, N. H.
 CHARLES D. COOL—Assistant Professor of Romance Languages, The University of Wisconsin, Madison.
 JOHN L. COULTER—The University of Minnesota, Mallory.
 FREDERICK S. DEIBLER—Assistant Professor of Political Economy, Northwestern University, Evanston, Ill.
 FRED DUNCALF—Professor of History, The University of Texas, Austin.
 GLOVER D. HANCOCK—Assistant Professor of Economics, Amherst College.

- RALPH H. HESS**—Associate Professor of Political Economy, The University of Wisconsin.
ALONZO S. McDANIEL—Bureau of Standards, Washington, D. C.
MRS. THERESA McMAHON—Seattle, Washington.
WILLIAM F. NOTZ—Professor of Ancient Languages, Northwestern University, Watertown, Wis.
EDMUND B. SCHLATTER—Assistant Professor of Romance Languages, The University of Wisconsin.
CHARLES W. STODDART—Professor of Agricultural Chemistry, Pennsylvania State College, State College, Pa.
HELEN L. SUMNER—Bureau of Child Welfare, Washington, D. C.
WILLIBALD WENIGER—Professor of Physics, Agricultural College, Corvallis, Oregon.
EDWARD WOLESENSKY—Instructor in Chemistry, The University of Iowa, Iowa City.

1910

- RUTH ALLEN**—Teacher, High School, South Milwaukee.
SYDNEY H. BALL—Mining Geologist, 71 Broadway, N. Y.
R. C. BENNER—Professor of Chemistry, The University of Arizona.
CLARENCE E. BOYD—Professor of Latin and Greek, Florida State College for Women, Tallahassee, Fla.
JAMES M. BRECKINRIDGE—Instructor, Carroll College, Waukesha, Wisconsin.
THOMAS W. CRAFER—Professor of Political Science, Lawrence College.
FRANCIS T. H'DOUBLER—Student, Harvard University.
CHARLES W. HILL—Chemist, Cleveland Research Laboratory.
DAVID KLEIN—State Chemist, Springfield, Illinois.
FRANCIS E. KRAUSKOPF—Assistant Professor of Chemistry, The University of Wisconsin.
BENJAMIN F. LUTMAN—Assistant Professor of Botany, The University of Vermont.
HENRY H. P. SEVERIN—201 Wisconsin St., Milwaukee, Wis.
EDWARD STEIDTMANN—Assistant Professor of Geology, The University of Wisconsin.
EARLE M. TERREY—Assistant Professor of Physics, The University of Wisconsin.
W. J. TRIMBLE—Professor of History, Agricultural College, N. D.
MELVIN J. WHITE—Professor of History, Tulane University.
WENDELL G. WILCOX—Consulting Chemist, Cleveland, Ohio.

1911

- FRANCES BERKELEY**—Mrs. Karl Young, Madison, Wisconsin.
JOSEPH BRANIT—Assistant Professor of Latin, The University of Wisconsin.
FRIEDRICH BRUNS—Assistant Professor of German, The University of Wisconsin.
WILLIAM COLLINS—Victoria Memorial Museum, Ottawa, Canada.
GUY H. COX—Instructor, School of Mines, Rolla, Missouri.
JAMES N. CURRIE—Chemist, Storrs Station, Connecticut.
PAUL H. DIKE—Instructor in Chemistry, The University of Missouri, Columbia, Missouri.
WILLIAM FORSYTHE—Physicist, General Electric Company, Cleveland.
CHARLES GATES—Instructor, Milwaukee Normal School, Wisconsin.
LEWIS C. GRAY—Professor of Political Economy, The University of Saskatchewan.
HAROLD HASTINGS—Professor of Ancient Languages, Hamilton College.

- ALCAN HIRSCH—Chemical Engineer, 601 W. 115th St., New York City.
 ARDEN JOHNSON—Chemical Engineer, Madison, Wisconsin.
 CHARLES T. KIRK—Assistant Professor of Geology, The University of New Mexico, Albuquerque.
 JESSE T. LITTLETON—Physicist, Corning Glass Works, Corning, N. Y.
 FREDERICK MANCHESTER—Instructor in English, The University of Wisconsin.
 FREDERICK McALLISTER—Instructor in Botany, The University of Texas.
 MAX C. OTTO—Assistant Professor of Philosophy, The University of Wisconsin.
 BERNADOTTE SCHMITT—Instructor in History, Western Reserve University, Cleveland, Ohio.
 RICHARD SCHOLZ—Assistant Professor of History, The University of California.
 LEON I. SHAW—Instructor in Chemistry, Northwestern University, Evanston, Illinois.
 JOSEPH D. TRUEMAN—Deceased.
 AUGUST W. WEBER—Instructor, Normal Training School, Cleveland, Ohio.

1912

- MARTIN ANGELL—No address.
 FRED A. BACHMANN—Assistant Professor of Botany, Milwaukee-Downer College.
 OSCAR BARNEBEY—Instructor in Chemistry, The University of Wisconsin.
 FREDERICK CUNNINGHAM—Engineer, General Electric Company, Harrison, N. J.
 HORACE GROVE DEMING, Los Llanos, Laguna, Philippine Islands.
 MELVIN E. DIEMER—Chemist, Forest Products Laboratory, Madison.
 EMIL O. ELLINGSON—Instructor in Chemistry, The University of Wisconsin.
 JAMES A. ESTEY—Professor of Political Economy, Purdue University.
 ROBERT HARVIE—Geologist, Geological Survey, Ottawa, Canada.
 JOHN HILL—Instructor in Oshkosh State Normal School, Wisconsin.
 EARNEST A. HOOTON—Harvard University.
 STANLEY K. HORNBECK—Assistant Professor of Political Science, The University of Wisconsin.
 WINFIELD S. HUBBARD—Chemist, Government Service, Washington, D. C.
 AXEL JOHNSON—Social Worker, Alta Vista, Kansas.
 HELEN M. JOHNSON—Chickasha, Oklahoma.
 ALFRED L. KOENIG—Instructor in Chemistry, The University of Wisconsin.
 JAMES N. LAWRENCE—Chemical Engineer, Buffalo, N. Y.
 GEORGE V. McCAULEY—Instructor, Northwestern University, 806 Main Street, Evanston.
 WARNER J. MORSE—Maine Agricultural Experiment Station, Orono, Me.
 ROBERT MICHELL—Assistant Professor of Romance Languages, The University of Wisconsin.
 CARL F. NELSON—Instructor in Chemistry, The University of Illinois.
 LAWRENCE M. PRICE—Instructor in German, The University of Missouri, Columbia, Mo.
 HORACE SECRIST—Assistant Professor of Political Economy, Northwestern University, Evanston, Ill.
 GEORGE W. STEPHENS—Professor of Political Economy, The University of Maine.

PAUL E. TITSWORTH—Professor of Languages, Alfred University.
BENJAMIN B. WALLACE—Assistant Professor of Political Science,
Northwestern University, Evanston, Ill.
ALLEN B. WEST—Professor of Greek, Swarthmore College.

1913

ALBERT W. ARON—Instructor in German, The University of Wisconsin.
ROBERT BROOKS—Instructor in History, The University of Georgia.
WILLIAM A. COOK—Assistant Professor of Education, The University of
Colorado.
ROY CURTIS—Director, School of Commerce, The University of Georgia.
ULYSSES G. DUBACH—No address.
ADOLPHINE B. ERNST—Instructor in German, Extension Division, The
University of Wisconsin.
THOMAS L. HARRIS—Assistant Professor of Economics, Carlton Col-
lege.
WILLFORD I. KING—Instructor in Political Economy, The University
of Wisconsin.
SELDEN G. LOWRIE—Assistant Professor of Political Science, The
University of Cincinnati.
IRVING E. MELHUS—Plant Pathologist, Bureau of Plant Industry,
Washington, D. C.
WILLIAM H. PETERSON—Instructor in Chemistry, The University of
Wisconsin.
ROY L. PRIMM—Assistant in Agricultural Bacteriology, The University
of Wisconsin.
CHARLES M. PURIN—Assistant Professor of German, The University of
Wisconsin.
WALTER E. ROLOFF—Seattle, Washington.
JONATHAN F. SCOTT—Assistant Professor of History, The University of
Michigan.
LUCRETIA SIMMONS—Assistant Professor of German, Milwaukee-
Downer.
NELLIE A. WAKEMAN—Instructor in Pharmacy, The University of Wis-
consin.
JERRY E. WODSEDALEK—Professor and Head of Department of Zoo-
logy, The University of Idaho, Moscow, Idaho.
CHARLES E. YOUNG—Instructor in Romance Languages, Beloit College.

1914.

ISAAC ASH—Professor of Education, Ohio University, Athens.
ROSS A. BAKER—Instructor in Chemistry, The University of Minne-
sota.
ELBERT T. BARTHOLOMEW—Instructor in Botany, The University of
Wisconsin.
RAYMOND T. BIRGE—Instructor in Physics, Syracuse University.
JOHN M. BRIDGHAM—State Normal, La Crosse.
RALPH H. CARR—Instructor in Agricultural Chemistry, Purdue Uni-
versity, Lafayette, Indiana.
WILLIAM W. CARSON—Professor of History, Morningside College, Sioux
City, Iowa.
JAMES L. CATTELL—Assistant Professor of Romance Languages, The
University of Wisconsin.
H. A. CURTIS—Instructor in Chemistry, The University of Colorado.
L. P. DEVRIES—Instructor in Romance Languages, Leland Stanford
Junior University.

- GERHARDT DIETRICHSON—Instructor in Chemistry, The University of Minnesota.
- EZEKIEL DOWNEY—Statistician, Industrial Commission, Madison.
- HOWARD A. EDSON—U. S. Bureau of Plant Pathology, Washington.
- JOHN I. FALCONER—Assistant Professor of Agricultural Economics, Ohio State University.
- JOSEPH S. GALLAND—Assistant Professor of Romance Languages, The University of Wisconsin.
- EDWARD M. GILBERT—Assistant Professor of Botany, The University of Wisconsin.
- GRACE GOODRICH—Ripon.
- HARRY E. HEEREN—Professor of Political Science, Cambridge University, 303 Craig Hall, Cambridge, Mass.
- MARTIN P. HENDERSON—Pathologist, Oregon Experiment Station, Medford, Oregon.
- AARON JOHNSON—Instructor in Plant Pathology, The University of Wisconsin.
- GEORGE W. KEITT—Instructor in Plant Pathology, The University of Wisconsin.
- WILLIAM J. KELLER—Instructor in German, The University of Wisconsin.
- ORREN LLOYD-JONES—Assistant Professor of Animal Husbandry, Iowa State College, Ames, Iowa.
- CLIFFORD C. MELOCHE—Assistant in Chemistry, The University of Wisconsin.
- PAUL H. MILLER—Assistant Professor of Romance Languages, The University of Wisconsin.
- PAUL H. NEYSTROM—Assistant Professor of Political Economy, The University of Minnesota.
- HEINRICH W. NORDMEYER—Assistant Professor of German, Ohio State University.
- GILBERT M. SMITH—Instructor in Botany, The University of Wisconsin.
- CHESTER SNOW—Teacher, Moscow, Idaho.
- RAYMOND T. ZILLMER—Instructor in Political Science, The University of Wisconsin.
- OTTO J. ZOBEL—Instructor in Physics, The University of Wisconsin.

REPORT OF THE DIRECTOR OF WASHBURN OBSERVATORY

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: I submit to you herewith my report as Director of the Washburn Observatory for the biennial period ending June 30, 1914.

From its foundation, in 1879, the Washburn Observatory has been regarded primarily as an institution for astronomical research and, in fulfillment of this purpose, it has been my plan to concentrate its work upon large problems requiring for their solution protracted effort along lines carefully determined in advance. The last two years, therefore, have been devoted to a continuation of work whose earlier stages are set forth in my former reports. The two chief instruments of the Observatory are assigned, the meridian circle to Astronomer Flint, the 40 cm. equatorial telescope to the director. The smaller equatorial telescope and the transit instrument are given mainly to student use since the limited staff of the Observatory does not suffice for their systematic employment upon research problems. These smaller instruments, however, together with other minor apparatus, constitute a valuable auxiliary to instruction in astronomy and have been used to a considerable extent by advanced students.

My personal research work has been given largely to a determination of the proper motions of faint telescopic stars through micrometric comparison of their positions with those of brighter neighboring stars of known motion. This field was practically unworked when I entered it a decade ago, but the work done here is now attracting to it a considerable measure of attention elsewhere. My provisional results have from time to time been published in various astronomical periodicals and in Volume XII of the *Publications of the Washburn Observatory*. Their

most complete exposition is to be found in No. 655 of the *Astronomical Journal* issued since the date of my last report, from which I quote with verbal modification the following summary of results thus far attained.

"1. It has been customary to assume that the fainter stars have no sensible motions but, out of 500 telescopic stars included between the seventh and thirteenth magnitudes, that have been here investigated, approximately seventy-five per cent yield sensible proper motions.

"2. The proper motions are referred to the system of Boss's *Preliminary General Catalogue* and possess a precision but little inferior to those of the fainter stars of that catalogue.

"3. These proper motions confirm and extend from the lucid stars at least to the twelfth magnitude the relation, that in the mean the amount of proper motion is inversely proportional to stellar magnitude. When seven per cent of the proper motions are rejected as abnormally great, the relation assumes the form, mean proper motion multiplied by magnitude equals 35" per century.

"4. The frequency law of distribution of the individual products is such that the value most frequently occurring is 15" but one-half of all values of the product are greater than 35". For both lucid and telescopic stars, seven per cent of the values exceed 120" per century.

"5. The values of the proper motions show a marked dependence upon position with respect to the galaxy. The lucid and the telescopic stars agree in making the mean proper motion in high galactic latitudes about twice as great as in the milky way.

"6. The telescopic stars here discussed furnish two determinations of the apex of solar motion, one from stars fainter than, the other from stars brighter than the tenth magnitude. These determinations are in substantial agreement with the results furnished by brighter stars when account is taken of a progressive shift in the galactic longitude of the apex, indicated by the bright stars.

"7. The sun's linear velocity relative to the telescopic stars is substantially the same as its velocity relative to the lucid stars.

"8. The stars between the seventh and thirteenth magnitudes share in the drift or preferential direction of motion found for the brighter stars and have approximately the same line of motion (vertex).

“9. The numerical amount of preference for this direction of motion is substantially the same for bright and faint stars.

“10. The lucid and telescopic stars have approximately equal components of motion perpendicular to the line of drift. They have also equal components of motion parallel to the line of drift.

“11. The linear velocity of stellar motions is substantially independent of stellar magnitude.

“12. The faint stars and bright stars are parts of one and the same stellar system and are in great measure intermingled, the faint stars being less remote than has been inferred from photometric considerations.”

These results may serve to illustrate the purpose and partial outcome of the investigations in hand, but they are not to be interpreted as marking its conclusion. It is my intent to continue this work along similar lines for some years to come.

Parallel with the above work, I have carried on a series of observations of binary stars, commenced many years ago. Included in this list are the major part of all known stars which show any considerable effect of attraction one for another. The exact nature of the motion produced by these attractions, while known in general terms, presents in detail problems of high scientific interest which can be investigated only through the data furnished by painstaking observation of these stars made with a fairly large telescope. The value of such observations is greatly enhanced when they constitute a prolonged series made by the same person with the same instrument and under similar conditions. It is therefore my purpose to continue these observations so long as my connection with the Observatory endures and to make them approach as nearly as possible to the ideal condition, in which the observations made by a single observer shall cover the entire period of the revolutions of the stars in their orbit.

It seems proper also to state in this connection that a certain portion of my time and strength has been given to matters connected with the administration of scientific societies of national character, e. g., as chairman of the Committee on Astronomy of the National Academy of Sciences and as vice-president and chairman of the Committee on Comets of the Astronomical and Astrophysical Society of America. I may also note my election, during the period covered by this report, to membership in the American Academy of Arts and Sciences.

During the past two years Astronomer Flint has devoted a large amount of time to the further discussion and study of his observations for determining the distances of the nearer fixed stars. The observations are in themselves so delicate and difficult that it is only through the most minute precaution that the integrity of their results can be assured. Although provisional results of these observations have been published in the *Astronomical Journal*, their definite presentation is still to be made through a future volume of the *Observatory Publications*, to which these studies are a preliminary. During the period covered by this report, Mr. Flint has commenced using the meridian circle for the accurate determination of the positions of a selected list of about 3000 telescopic stars for which accurate modern observations are needed to determine their proper motions. Much efficient assistance in the routine parts of this work has been rendered by the Observatory clerk, Miss Edna Hill. Progress in the work above outlined has been greatly delayed through difficulties encountered in the use of a new printing chronograph. This instrument should greatly diminish the time and labor required for the observations in question, by furnishing a mechanical substitute for a considerable part of the astronomer's work. The apparatus has, however, proved very refractory and it was only after much effort and much assistance kindly furnished by the Departments of Physics and Electrical Engineering that it has recently been brought into fairly satisfactory condition. The standard sidereal clock of the Observatory has also been a source of annoyance and suspicion in connection with this work. It is thirty years old, is somewhat worn in its essential parts and is at present under investigation to determine whether it may still be considered serviceable or whether it needs to be replaced by a new and better instrument.

In accordance with established practice, the large telescope of the Observatory has been devoted to the use of visitors upon the first and third Wednesday evenings of each month, weather permitting. The Observatory is then thrown open to all visitors who choose to come, look at the heavens through the telescope and listen to the explanations given by the astronomer in charge. I estimate that from 2000 to 3000 persons avail themselves of this privilege each year.

The University time service has been maintained from the Observatory and has been materially increased through the demands

made upon it by the new buildings. The installation of this additional service as well as the current operation of the system has been carried on under my supervision by the observatory janitor in addition to his ordinary duties.

All buildings and instruments pertaining to the Observatory have been maintained in good condition during the period covered by this report and two notable betterments have been made, *viz.*, the connection of the buildings with the central heating station, as requested in my last report, and the substitution of a properly insulated system of electric wiring for the antiquated and hazardous electric light connections formerly in use. The only material addition to the buildings, beyond ordinary repairs, now required relates to fire protection which is still inadequate. I renew my former recommendation for increased protection of this kind.

Very respectfully,

GEO. C. COMSTOCK,

Director.

REPORT OF THE DIRECTOR OF PHYSICAL EDUCATION

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: I herewith submit my report as Director of the Department of Physical Education for the biennium closing June 30, 1914.

The report for the previous biennium chronicled the reorganization, outlined the new plans, and presented the salient needs of the department.

This report is in two parts. Part I reviews briefly the progress and status of various phases of the department and its activities. In Part II detailed consideration is given to certain departmental and University policies relating to the physical education of the general student body and to the impossibility of carrying some of these policies into effect without a radical change of conditions.

PART I—PROGRESS

CHANGES IN THE STAFF

While the staff is essentially the same as at the beginning of the biennium, certain important changes and additions have been made that should be noted.

Professor Clark W. Hetherington, who was a lecturer on part time from 1911, was appointed Professor of Physical Education in 1913, in charge of certain academic courses and research in physical education and play.

Assistant Professor John W. Wilce, Manager of Athletics from 1911 to 1913, resigned to become Professor of Physical Educa-

tion and Director of Football and Intra-mural Athletics at Ohio State University. He was succeeded by Mr. W. D. Richardson with the title of Assistant to the Director.

Mr. Chas. H. Wilson, Track coach, resigned August, 1912, and was succeeded by Mr. Thos. E. Jones, who came from the University of Missouri, January, 1913.

Mr. Chauncey Hyatt, Instructor and Coach of Swimming and Aquatic Sports, resigned in 1913 to become Assistant Director of Physical Education in New Trier Township High School. He was succeeded by Mr. Harry H. Hindman.

Assistant Professor Abby S. Mayhew, Director of the Women's Gymnasium, resigned in 1912, and, representing the Young Women's Christian Association, went to China to promote the physical education of Chinese girls and women. She was succeeded by Assistant Professor Blanche M. Trilling, formerly Associate Director of Physical Education in the Chicago Teachers' College.

Dr. Alice Hopkins resigned in 1914 and is succeeded by Dr. Margaret L. Johnson, Assistant Professor of Physical Education, formerly Professor and Director of Physical Education for women in the University of Kansas.

The reorganization of the staff in the Women's Division was completed in 1913 by the addition of three professionally trained instructors, Leslie B. Sawtelle (A. B. Wellesley), Henrietta L. Brown (A. B. Vassar), Mary Alice Brownell (Wellesley).

WOMEN'S DIVISION

The past two years have been marked by the completion of the departmental reorganization of the Women's Division. The activities of the women are now conducted with most satisfactory results under the conditions, out-of-doors during the fall and spring in harmony with the plans outlined in the report of the previous biennium.

The entire plant in Lathrop Hall is now open day and night except Saturday. There is no student demand for Saturday. Previous to 1912 the plant was open only four days each week.

As noted in the previous report, a larger percentage of women than of men students is below par physically. Decided advance has been made in the provision of sports which can be engaged in freely by these less vigorous young women with advantage

and without danger. Archery and quoits, with several team games less strenuous than basketball, are helping to solve this problem. Track and field events and fencing have been added for the Class A women.

Further indoor activities will become possible with the equipment of the space formerly used by the Department of Home Economics.

The fullest use of the swimming pool waits on the provision of adequate dressing and shower facilities.

An important development during the year 1913-14 was the inauguration of a series of lectures on hygiene given by Dr. Hopkins of the department staff and Dr. Morris of the Medical Adviser's staff. It is planned to enlarge this during the coming biennium. It is hoped that this may eventually develop into a semester course with academic credit, and be required of all freshmen. At present it can be conducted only at the expense of time that should be devoted to physical exercise.

The following data from the report of the Director of the Women's Gymnasium indicates the scope of the activities:

Number of students enrolled.		1913-14
Freshmen and sophomores.....	495	
Upperclassmen	247	742
Enrollment in swimming		517
bowling		237
basketball		108
dancing		267
corrective gymnastics		118
"light" exercise		83
general games		98
fencing		41
hockey		181
tennis		317
baseball		119
archery		206
track and field.....		25

Comparative data are unavailable because of the uncertainty of the statistics previous to 1913-14.

These records show 247 upperclassmen enrolled. Approximately 200 of these are voluntary and in excess of the requirement. The total enrollment of 742 is 65 per cent of the entire number of undergraduate women registered in 1913-14 in the University. Two hundred and six of these 742 are prohibited from any form of competitive sports.

MEN'S DIVISION

The report for the previous biennium called attention to the changes and alterations in the men's gymnasium from which

improved sanitary conditions were expected. In 1910-11, 6 per cent of all the cases receiving attention at the office of the Medical Adviser had their origin in "gymnasium infections." In 1913-14, this record was reduced to *two-fifths of one per cent*.

Further improvement is expected from the transfer of all military drill to the morning hours and of physical education to the afternoon. The installation of a new and powerful vacuum cleaner permits the thorough cleansing of the drill floor between the morning and afternoon schedules.

The swimming pool presents another sanitary problem which is again emphasized in the report of the Director of the men's gymnasium. Under his supervision, the pool has been treated regularly with calcium hypochlorite which renders the water perfectly safe so far as pathogenic germs are concerned. However, the water, which is drawn from the lake, has so much organic matter that it is frequently very unsightly and of foul odor. This has been so bad at times that it was necessary to dismiss scheduled swimming classes.

Data presented by the heating engineer show that a re-filtration system can be installed that will reduce the pumping and heating expense sufficiently to pay for the entire improvement in 5 years. Such a system will ensure absolutely clear water and establish swimming as a popular form of exercise with upper classmen who will not use the pool as it is. Swimming indoors is largely confined to freshmen and sophomores at present. This improvement is most earnestly recommended. It can be done for \$1,350 and will effect an annual saving of \$280 or more.

A constant source of interference with the efficiency of the department has been the long standing practice of having military drill at 3:30 and 4:30 o'clock. This has engaged large numbers of students at the only hours otherwise available for voluntary exercise. It also necessitated the holding of physical education classes in the morning. Developments in the military department in the year 1913-14 looked to the further use of the gymnasium during the afternoon with consequent curtailment of the activities of this department.

The Director of the men's gymnasium suggested that he could organize all required activities in the afternoon without loss if military drill were transferred to the morning. With the approval of the Commandant and after conference with the sched-

ule committees of the various colleges, the University faculty approved the necessary changes in the rules which permitted the two departments concerned to make the desired arrangement. Within the limits of our facilities and time (two periods of thirty minutes each of actual exercise per week) the new plan will make for distinct improvement in the results of the prescribed activities.

The organization of a leaders corps of seventy-five students provides a large body of trained assistants, materially enlarging the efficiency of the regular staff.

The following data from the report of the Director of the men's gymnasium indicates the scope and variety of the activities provided for the satisfaction of the freshman and sophomore requirement and the extent of the enrollment of both classes:

1913-1914 ENROLLMENT—FRESHMEN AND SOPHOMORES—Men.

Activity	First semester Fall season		Second semester Winter season	
	Freshmen	Sophomores	Freshmen	Sophomores
General class	605	61	415	117
Leaders corps	50	20	50	25
Gymnastics—Adv.	10	25	25	10
Gymnastics—Team				25
Track—Class	79	35	123	72
Track—Team		13		29
Football	52	45		
Football—Varsity		21		
Soccer	21	39		
Basketball	40		28	58
Basketball—Varsity		16		21
Swimming	25	227	137	18
Swimming—Varsity		9		3
Rowing	35	30	25	21
Rowing—Varsity			20	9
Baseball—Varsity				20
Boxing				44
Wrestling				16
Corrective	108	52	103	76
Totals	1,025	593	929	564
Duplications		61		
	1,025	532	929	564

	First semester		Second semester	
Summary—				
Freshmen	1,025		929	
Sophomores	532		564	
Upper class (making up)		1,557		1,493
Agric. short course		41		48
Dairy students		432		238
		100		
		2,130		1,779

A working agreement with the Military Department provides that sophomores who are officers in the regiment may substitute an extra year of military drill for their sophomore physical education. During 1913-14, 29 students took advantage of this in the first semester, and 34 in the second.

INTRAMURAL SPORTS

The participation of students in physical activities other than those in fulfilment of freshman and sophomore requirements and intercollegiate athletics, cannot be indicated with any degree of exactness, as there is no practical method of securing the necessary data. There is no question that it is all that the capacity of the available facilities permits. A discussion of this factor is given in Part II of this report.

The organized activities of the women include the following sports and tournaments:

Fall—Hockey, Tennis, Volley Ball, Newcomb, and Archery.

Winter—Bowling, Basketball, Swimming, and Fencing.

Spring—Archery, Baseball, Tennis, Track, and Field.

Other sports will be organized as facilities are provided and interest is developed.

The organized voluntary activities of the men include tournaments and contests in the following sports:

Fall—Cross Country, Track and Field, Football and Soccer.

Winter—Basketball, Swimming, Track and Field, Wrestling, Fencing, Handball, and Gymnastics.

Spring—Baseball, (4 leagues—36 teams), Track and Field, Tennis, Rowing, and Canoeing.

The number of different men in contests and tournaments or on squads training for these events *exclusive of intercollegiate*, was approximately as follows:

Fall	264
Winter	463
Spring	835

Allowing for duplications, it is estimated that over 1000 different men participated in voluntary competitive sports. These are exclusive of members of 'varsity teams.

Financing of Intramural Sports continues to be a problem because there is no fixed source of revenue that can be depended

upon. All moneys spent upon these sports and the associated activities—the annual Alumni Homecoming in the Fall and the Spring Festival—come from the sale of buttons, admission receipts of the various events, and the circus.

The Student Athletic Board, the Department and the Athletic Council are studying this question and hope to solve it during the coming year.

The status of the interclass Athletic Fund, of which the Director of Physical Education is the custodian and the Athletic Board the directors, is as follows:

STATEMENT INTERCLASS ATHLETIC FUND

1912-13

Balance 1911-12		\$501.86	
Receipts—			
Circus	\$1,251.87		
Festival	1,579.10		
Homecoming	335.50		
Track	359.65		
Rowing	285.00		
Miscellaneous	103.05		
		3,914.17	
			\$4,416.03
Expenses—			
Festival	\$2,284.85		
Homecoming	221.36		
Track	350.48		
Rowing	377.63		
Football	581.43		
Basketball	135.61		
Baseball	231.80		
Miscellaneous	430.17		
			4,612.83
Bills payable			\$196.80
1913-14			
Receipts—			
Festival	\$369.15		
Homecoming	234.76		
Football	284.82		
Track	181.50		
Miscellaneous	10.25		
			\$1,080.48
Expenses—			
Festival	\$477.73		
Homecoming	293.12		
Football	306.66		
Track	141.84		
Miscellaneous	74.51		
		\$1,293.86	
1912-13		196.80	
			1,490.66
Bills payable			\$410.18

INTERCOLLEGIATE ATHLETICS

Intercollegiate athletics continue to hold a prominent place, and, because of their spectacular nature, are considered by many to be the chief feature and to constitute the largest part of the department's activities. Because of confusing the functions of

intercollegiate and intramural athletics these two groups of activity are frequently contrasted and set off against each other to the disadvantage of the former.

Intercollegiate athletics do not necessarily prevent or interfere with the development of intramural activities. Properly conducted the reverse is the case.

The development of intramural athletics depends, among other things, upon the amount and conveniences of the available space and the time at the students' disposal. The space requirement for the various sports is essentially the same per game and per person in both intercollegiate and intramural schemes. Part II of this report will show that the available facilities are now used to their limit. No increase of the number of students in the various sports could be secured in any such number as to make up for the definite loss that would be caused by the elimination of intercollegiate athletics. Intramural sports would cost less money but would not bring in the amount necessary to maintain them without the University appropriations.

Participants. During the two years just closed the net number of students participating in intercollegiate sports has been as follows:

Sport	1912-1913	1913-1914
Cross country	22	26
Football	43	47
Track and field	64	59
Basketball	36	28
Baseball	38	50
Rowing	42	42
Gymnastics	15	27
Swimming	22	20
Wrestling	9	8
Fencing	12	12
Tennis	9	10
Total	317	329
Duplications	40	45
Net	277	284

The numbers above do not include freshmen nor many who turned out at the beginning of the season but found themselves unfitted to reach the requisite standard to continue with the squad or were ineligible on account of scholarship. These unrecorded men continue to follow their selected sport when there are sufficient space and instructors to accommodate them in the intramural scheme.

Games Won and Lost. The results of the various contests

were sufficiently successful to encourage the belief that a higher degree of efficiency has been reached than prevailed in previous seasons.

GAMES WON AND LOST

Sport	1912-1913		1913-1914	
	Won	Lost	Won	Lost
Baseball	5	7	7	5
Cross country	1	.....	2	.....
Football	7	.....	3	3
Track	3	1	2	3
Rowing	1	3	.....	2
Basketball	14	1	15	.....
Gymnastics	2	.....	1	1
Swimming	2	2	.....	4
Fencing .....	.....	1	.....	1
Wrestling .....	.....	2	1	1
Total	35	17	31	20

Conference championships were won during the biennium as follows:

1912-1913—Basketball, Cross Country, Football, Gymnastics, Indoor Track and Field.

1913-1914—Basketball and Cross Country.

The basketball team has the remarkable record of losing in three seasons but one game out of forty-five played.

Two events during the biennium require special consideration.

Rowing. In the spring of 1914 the Executive Committee of the Board of Regents requested of the Athletic Council a report on the effect of rowing on the health of students. On the request of the Council the Medical Adviser submitted a report covering the period 1910-1913. This report was submitted to the Medical Faculty for interpretation and recommendation and on the basis of these several actions the Council on June 23, 1914, "voted that the action of the Medical Faculty be presented to the University Faculty with the following recommendation:

"The Athletic Council recommends that participation in intercollegiate rowing contests by University of Wisconsin crews be temporarily discontinued, pending the further development of intramural aquatic sports."

While final action was taken subsequent to the close of the biennial period covered by this report, it seems wise to incorporate here the report submitted to the University Faculty and adopted by them on September 28, 1914, and, on October 14, 1914, approved by the Board of Regents.

FRESHMAN CREWS—1911 TO 1913, INCLUSIVE

Class	Total	Records	Cardiac Hypertrophy		Dilation	Duplicate in Varsity list. Later Varsity candidates	SUBSEQUENT CHANGES IN MEN CONTINUING ROWING AFTER FRESHMAN YEAR. (Unrecorded under data for year.)			
			Before	After	Numeral Men		Total	Hypertrophy Numerical Men	Total	Dilation Numerical Men
1914.....	34	31	2	10	6	6	5	2	2	2
1915.....	14	14	2	8	6	10	0	0	0	0
1916.....	11	11	2	10	7	7	1	1	1	1
Total (Different Individuals).....	59	56	6	28	19	23				

VARSITY CREW—1911 TO 1914, INCLUSIVE

Year	Total	Records	Cardiac Hypertrophy		Dilation	Duplicate men or previous Varsity candidates	SUBSEQUENT CHANGES IN MEN IN SUCCEEDING ROWING SEASONS. (NOT RECORDED WITH DATA OF YEAR.) Previous changes noted.			
			Before	After	"W" Men		Total	Hypertrophy	Dilation	Hypertrophy
Year	Total	Records	Before	After	"W" Men	Dilation	Total	Total	"W" Men	Total
1911.....	26	26	1	6	5	0	0	0	0	0
1912.....	10	10	4	9	7	0	1	1	2	4
1913.....	14	14	10	13	11	1	0	0	1	10
1914.....	21	21	15	(15)?	7	1	0	1	1	15
Total (Duplicates where more than one year crew).....	71	71	30	(43)?	30	2				
Total Individual.....	56	56	7	40						
Total W. Men.....	23	23	4	20						

NOTE:—These additional data are supplied as to show a change in the ultimate changes of crew of each year by the addition of those of those of the year. For example, taking the 1914 crew (Freshman): At end of Freshman season 10 men of squad (31) 6 of these continued in the periphery; on conditional side of rowing 5 more of squad 2 of them numeral men in 1914, making total of 15 of 1914 squad and 8 of the numeral men, developed hypertrophy.

(? 1914 season not complete)

REPORT TO UNIVERSITY FACULTY ON INTERCOLLEGIATE ROWING

"The effect of training for and participation in intercollegiate rowing races was discussed during the past year by the Regents, the Athletic Council, and the Department of Clinical Medicine, and in April the Athletic Council was requested by the Executive Committee of the Regents to prepare a report upon the question.

"The Department of Clinical Medicine on request of the Council prepared statistics from its records, which may be summarized as follows:

"Of 59 candidates for Freshman crews in the years 1910-1913, there are medical records of 56 men. Of these 6 had cardiac hypertrophy before beginning rowing. During one season's training this was increased by 22 men, making a total of 28 Freshman oarsmen with heart hypertrophy. The records of the 'Varsity crew candidates are essentially subsequent histories of these men as the 'Varsity is almost completely recruited from Freshman crews. These crew records show that of a total of 56 men training for the crews—7 had cardiac hypertrophy before beginning training, and 33 acquired the condition as a result of such training. Included in this list are 23 "W" men, of whom 4 had hypertrophy before making the crew, and 16 developed it, giving a total of 20 out of 23 "W" men.'

"In response to a request to the Medical Faculty the following interpretation of these statistics was received:

"The Faculty of the Medical School believe that the data presented by the Clinical Department showed conclusively that the severe training deemed necessary for preparing crews for intercollegiate contests puts so severe a strain on the heart that an undue proportion of men are seriously injured, and that, therefore, a continuation of intercollegiate rowing is indefensible from the health standpoint.'

"The Athletic Council recommends that participation in intercollegiate rowing contests by University of Wisconsin crews be temporarily discontinued, pending the further development of intramural aquatic sports."

Omitted through oversight from this statement is the graver medical fact that 3, or 15 per cent, of the hypertrophies among "W" men had resulted in acute dilation, seriously affecting the

immediate health of the men concerned. The detailed report of the Medical Adviser is submitted herewith.

It is believed that the elimination of the freshman crew and extending the period of preparation of a 'varsity crew to two or three years, may prove the solution of the problem in which the chief factors are, first—crew material with no previous experience of a sort that would give proper heart training during the growing and developing period, and second—too short a season on the water in which to develop the requisite technique or watermanship, this necessitating more rowing than such material could endure without danger.

Camp Randall. In the biennial report of 1912 it was stated that "the equipment at Camp Randall is rapidly deteriorating and probably cannot be maintained beyond 1915 without further large expenditures."

In May, 1914, an inspection of the north stand at Camp Randall by the University Architect and the Consulting Engineer, disclosed such a dangerous condition that the stand was condemned and dismantled.

Thus was precipitated without warning a situation that was not expected to develop seriously before another year. A temporary solution has been found by renting portable bleachers at a cost for the football season of \$2000, (25 cents per seat), but this policy cannot be continued for any length of time. It is unsatisfactory from nearly every point of view.

The bleachers are of the "circus" type and entirely safe, but do not have the appearance of safety nor of comfort, and in finish are most unattractive. Being entirely open beneath the seats except for footrests, they afford no protection on cold, windy days.

They are exceedingly uneconomical from the standpoint of income. Having only twenty rows of seats in order to keep within the margin of safety in height, and the bottom rows being too near the ground to permit a good view of the field, the number of seats in any section is so small that in order to secure a capacity equivalent to the old stand the structure must be extended nearly one hundred feet beyond the goal lines where seats are unsalable except when the demand is extraordinary.

From the standpoint of investment alone it will be unwise

to continue the present policy for longer than is necessary to establish the 'varsity fields in their permanent location and to convert the present ground to intramural purposes.

A plain reinforced concrete stand can be built on sloping ground for approximately \$3.00 per seat and with little or no expense for maintenance. The capacity of the grand stand, south bleachers and north bleachers was about 8,200. A 10,000 capacity stand would cost about \$30,000. Rental at 25 cents per seat is 8 per cent of the cost of a permanent structure. An investment of \$2,500 per annum would extinguish a \$30,000 loan at 5 per cent in less than twenty years and then the University would have an indestructible equipment. Wherever permanent stands of this nature have replaced wooden structures, attendance has immediately shown a marked increase. I would earnestly recommend serious consideration at an early date of this suggestion with a view to determining a legal and practical method of securing the necessary funds.

This situation also serves to emphasize a subject given prominence in both my preceding reports, namely, the adoption of a definite plan for the development of the department's permanent facilities.

Two years ago was noted the action of the Board of Regents in approval of a plan of development in harmony with the Laird and Cret scheme in the fields west of Observatory Hill now occupied by the College of Agriculture. During 1913 that action was rescinded when it appeared that the proposed plan would be destructive of many of the interests of the College of Agriculture. This department was fully in accord with this change and then proposed an alternative plan which from the standpoint of convenience of the student body as at present located, and with increasing convenience for many years to come, is superior to the former plan.

It was proposed, and the Board of Regents has approved, that Camp Randall's thirty-three acres, outside Memorial Park, shall be the permanent location of the 'varsity and intramural fields and of any new buildings erected for this department, and that additional fields shall be constructed in the immediate vicinity of the Men's Dormitories when these are built on the shores of University Bay.

In view of the present situation at Camp Randall as dis-

cussed above, and because of the conditions set forth in Part II of this report, I would earnestly recommend the adoption of a plan and the securing of ways and means to begin the proposed development early in 1915, at least to the extent of doing the necessary grading, drainage, and seeding, so that proper playing surfaces may be prepared at the earliest possible date.

Receipts and Expenses. A statement of the receipts and expenses of the Athletic Council for the biennium shows that the athletic activities have carried themselves during the past two years, with a net profit of \$7,430.73. The University has received \$6,000 of this profit on account of the Athletic Annex and the balance has been applied on the deficit caused by the large sums required for improvements and repairs in 1911-1912 (over \$13,000) and the Athletic Bulletin which ran behind \$2,600 in 1912-13 and was discontinued at the end of that year.

STATEMENT OF ATHLETIC COUNCIL

1912-1913

Net deficit—July 1, 1912.....			\$7,569.68
Games, Interest, etc.			
Income	\$46,617.05		
Expenses	42,341.04		
Profit		\$4,276.01	
Athletic Bulletin			
*Income	\$1,514.27		
Expenses	4,546.99		
Cash deficit		\$3,032.72	
Athletic Annex (Note to University).....	3,000.00	6,032.72	
Net deficit on year.....			1,756.61
Total deficit June 30, 1913.....			\$9,326.39

1913-1914

Games, etc.			
Income	\$44,364.10		
Expenses	41,209.38		
Profit		\$3,154.72	
Athletic Bulletin—Account 1912-13			
Income	\$589.70		
Expenses	155.27		
Profit	384.43	\$3,539.15	
Athletic Annex (note to University).....		3,000.00	
Net profit for year.....			539.15
Deficit June 30, 1914.....			\$8,787.24

* Does not include bills receivable.

PROFESSIONAL COURSES

The professional courses established in 1911 for the training of physical educators, play leaders, and recreation directors appear to have justified themselves judging from the enrollment and results to graduates. The registration has been as follows:

	1911-12	1912-13	1913-14
Majors	10	27	33
Minors	9	18	16
Special	5	2	1
	<hr/> 24	<hr/> 47	<hr/> 50

Of four majors who have been graduated, one has married, one is the director of physical education in a southern university, a third is director of a state normal school and the fourth of a large high school.

The requirements of the course are very heavy—unduly so in certain sciences. In co-operation with other departments, readjustment of certain science pre-requirements will reduce them approximately eight credits. This will permit a radical rearrangement of some subjects and increase the electives an equivalent amount. This will render it easier for those who desire to prepare for teaching other subjects as minor subjects. All those enrolled as minors are preparing to do combination work.

Inasmuch as the course must compete with other institutions where a different policy with regard to advertising obtains, and also with many private institutions having low entrance requirements and specializing on the so-called “practical” activities, the enrollment compares more than favorably with all of them.

PART II. POLICIES AND FACILITIES

Certain policies of the University with regard to the activities of this department, and of the department relative to the conduct of certain of its activities, having come up for consideration recently, it seems wise to present briefly the department's point of view concerning the matters under discussion.

REQUIRED VS. VOLUNTARY EXERCISE

The University for many years has *required* that first and second year students shall take a certain amount of prescribed physical exercise each week—two periods for men and four periods for women. It has been claimed that “required” exercise has no value commensurate with the time and energy and trouble involved in “going through” it. Without doubt superior results are secured when activities give pleasure. This is just as true of English or mathematics as of gymnastics or athletics. From the standpoint of “recreation” distasteful exercise is of little value. But college physical education is not primarily *recreation*. Organic power, the *sine qua non* of physical and mental efficiency, is conditioned by the status of heart, lungs, nutritive system, etc. Their functioning and development are directly related to the individual’s motor activity, irrespective of his state of mind.

The authorities of the United States Naval Academy at Annapolis found a few years ago that second and first class cadets (juniors and seniors) were losing in weight and strength. A system of pure Swedish gymnastics was introduced and *required* of these two upper classes with a resulting gain instead of loss of weight and strength.

This testimony is ample evidence of the value of required exercise, and there is no doubt that the need is greater here than there where they have a selected group to start with, and also a more favorable daily regimen of food, sleep, and activity.

The United States Military Academy at West Point also finds it necessary to “require” cadets to pursue a vigorous course of physical exercise, in addition to the activities involved in the cavalry and artillery drills.

The student of sedentary habit will not indulge in the necessary activity voluntarily. The long experience of colleges and schools before the requirement was established testifies to this. Required activity is not of necessity disagreeable, at least no more so than any form of muscular activity is to the man who has not maintained or acquired a desire for it.

The vast majority of students would have little systematic activity of any sort if not *required* to take it, and provision made for handling large numbers of them at one time. This

judgment is based upon the fact that 60 per cent of freshmen enter the University without any previous experience in systematic physical education, and no real experience in the ordinary vigorous games of adolescence. The result of this is the acquirement of a sedentary habit of life with its accompanying results of poor posture, lack of vitality, and deficient development.

This is further emphasized by the records of the Medical Department showing that in 1913-1914 in the examination of 1,371 men, 672 of them were placed in "Class A", 509 in "Class B", and 190 in "Classes C and D." In other words, less than 50 per cent were in such physical condition as to be permitted to indulge in any activity which they might elect. Six hundred and ninety-nine, or over 50 per cent, are required to be limited in their selection of their activity or of the activities required of them in this department.

TWO PERIODS PER WEEK

It is assumed that twice a week each of physical education and military drill is sufficient to meet the male student's motor needs. Inasmuch as the military drill is not designed for this purpose and has practically no such value, the two periods of physical education must bear the burden.

A "period" is fifty minutes. Five minutes of this must be taken to give sufficient time for change of clothes before, and fifteen minutes for bathing and dressing after, exercise. This leaves exactly thirty minutes of actual exercise twice a week, not counting the bath.

Twice a week is altogether inadequate time in which to properly organize the activities of the student, and to secure their supervision and direction in the most efficient way, or to get the maximum results of the activities which are practiced. The interval of abstinence is too long, the effects of one period do not "carry over" and cumulative effects can not be secured nor converted into habits.

While from the standpoint of the student's need, sixty minutes per week as required is an entirely inadequate provision, it is the experience of the writer, secured in twenty years of personal supervision of several thousand men, that thirty minutes

twice a week is much better than none, but three times are over 100 per cent better than twice and a fourth period adds not less than 50 per cent more to the efficiency of the work and the results to the individual.

The following table showing the previous experience in various forms of physical exercise of the freshmen entering in September, 1913, emphasizes the utter inadequacy of the physical preparation of the educated youth of this section of the country.

PREVIOUS PHYSICAL EDUCATION OF FRESHMEN

Entering Sept. 1913

Total number of students having filled out Phys. Edu. Hist. Blanks..... 1,010

	1 yr.	2 yrs.	3 yrs.	4 yrs.	Total.
Previous Physical Education in High schools.	80	156	60	93	393
" " " other institutions	77	78	26	52	233
Systematic instruction in baseball.....	53	21	19	34	127
" " " basketball.....	114	39	27	23	203
" " " gymnastics.....	99	44	15	20	178
" " " football.....	117	33	23	26	199
" " " Track and C. C.....	36	6	0	0	42
" " " other sports.....	85	20	10	32	147
No systematic instruction in any activity.....					553
Only one year (or season) in systematic (?) activity.....					154
Two or more years in systematic (?) activity.....					303
Member of High School teams in baseball.....	86	27	16	18	147
" " " " " basketball...	87	36	15	11	149
" " " " " football.....	123	31	27	14	195
" " " " " track & C.C.	70	16	3	4	93
" " " " " other sports.	11	0	0	2	13
Men having made no teams at all.....					640

On teams 1 year.....	237	or	23.5%
2 years.....	69	or	6.8%
3 years.....	38	or	3.7%
4 years.....	33	or	3.2%

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ONE HOUR OF PHYSICAL ACTIVITY DAILY

The policy announced and approved as the legitimate aim of the department is "One Hour of Exercise Daily." It is accepted that so far as possible this shall be in natural forms of athletic and aquatic sport rather than gymnastic. This raises at once the question as to the available facilities and the number to be accommodated.

November 1, 1913, there were approximately 4,400 students resident in the University—3,200 men and 1,200 women. During the winter months these numbers increased by approximately 500 short course students.

As the chief emphasis is upon out-door exercise, exclusive attention is here given to that phase of our problem.

Women: Nine tennis courts constitute the only provision specifically made for the women's outdoor exercise. Approximately three acres of Camp Randall now included in Memorial Park have been utilized for field hockey and other games. Because of trees and shrubbery there is room for one small hockey field and several courts for minor games and athletic events with a capacity of about seventy students. *Including tennis, the total capacity is approximately 110 to 125 students at one time.*

The use of the athletic field is solely on the sufferance of the Memorial Park Committee. This land has not been properly graded or drained, and has neither dressing, toilet, bathing, nor shelter facilities. The women dress at their gymnasium eight blocks from the field. A tent has afforded slight shelter and a place to remove skirts. In spite of these most serious handicaps successful work has been done in hockey, baseball, archery and other sports.

Men. The Lower Campus—across the street from the gymnasium—225 by 300 feet, approximately one and one-half acres—constitutes the chief outdoor playground and is used for all required activities of the freshmen and sophomore classes in the fall and spring and the intramural soccer and baseball. It is too small for one regulation baseball or football field but in the fall and spring classes of 70 to 90 find here their only outdoor opportunity, and the space is compelled to accommodate three class games playing crossways of the field simultaneously. It is the chief drill ground of the military department in the spring and is not available for athletic sports after 4:30 p. m. at such time.

The University Athletic Field, is exactly nine-tenths of a mile from the gymnasium. It is a total area of approximately forty acres, seven acres being devoted to the Memorial Park. Owing to the exceedingly varied grades of this land, rising forty feet in places, about ten acres only have ever been

utilized and these have been devoted primarily to intercollegiate sports. The equipment includes a quarter mile track, the bleachers and grandstand enclosing the football gridiron with permanent seating capacity of 8,200, now reduced to 2,800, the 'varsity and freshman practice gridirons, the 'varsity and freshman diamonds and nine student tennis courts. Nine courts of cheap construction have been added on other vacant University land convenient to the student quarter. The maximum practice capacity with all space in use is about 250, exclusive of cross country running. The locker room under the grandstand contains 200 lockers, shower baths, toilets and store rooms. The distance from the gymnasium and the small capacity of dressing and bathing facilities limits the use of these fields during the morning and early afternoon and restricts their use to the 'varsity squads only in the late afternoon.

The Boat Houses—two wooden structures immediately in the rear of the gymnasium—were erected in 1892. Repairs and reconstruction were planned to provide a shell house with capacity for 20 eight-oar shells and barges, a canoe and boat house with capacity for about 150 canoes and row boats and dressing quarters for swimmers and slip for the coaching launch. These changes have been deferred because of the unavailability of the state appropriation.

The present equipment includes 10 eight-oar shells and barges and 2 four-oars. It is planned to add 10 to 15 rowboats and 4 or more crew canoes. The capacity of these boats and shells will be about 150 students at one time. About 75 canoes owned by students and members of the faculty are stored here.

SUMMARY

Summarizing the foregoing, we find that the present outdoor facilities have a maximum capacity with respect to the number of students who can be accommodated at one time as follows:

Women—9 tennis courts.....	36	
Hockey, archery, etc.....	74	
	—	110
Men— Lower Campus: hockey or soccer.....	22	
Camp Randall: football.....	66	
Track	50	
Tennis	72	
Rowing and boating.....	90	
	—	300
		410

In the spring, the 3 baseball diamonds will provide for only 54 players instead of the 88 in football or soccer, but 100 could use the track and field instead of 50. The water is too cold for swimming except for a few days in June.

In connection with this summary these things are to be noted in particular:

1. *The total number that can be accommodated at one time indoors or out by the facilities provided is approximately 1/10 of the entire regular student body.*

2. The smallest provision is made for those sports and games that naturally interest the largest number of students.

3. Increased capacity may be gained by the use of class methods. This would be at the expense of voluntary participation, interest, pleasure, and the future habits of exercise—real values.

4. The space required for a game of football or baseball will accommodate approximately twice as many in practice as in a game, but the game requirement is the unit of estimate.

ONE THOUSAND PER HOUR

If possible, physical exercise should be had in the afternoon, preferably from 3:30 to 5:30, not earlier than 2:30 at least. This gives approximately three hours daily, or possibly four, considering the period from 11:00 to 12:00, within which provision might be made profitably for the bulk of the student body, but as few are free from academic requirements for the day before 3:30 and as natural inclination favors the late

afternoon, it may be expected that voluntary activity will be rather directly determined by the facilities available from 3:30 to 5:30.

There were enrolled on November 1, 1913, a total of over 4,400 students, (exclusive of short course), in round numbers, 3,200 men and 1,200 women. This is 800 more than were enrolled at the same date in 1911. It is reasonable to presume that the number soon will exceed 5,000, regularly on the campus throughout the year. Any consideration of new plans must be based on a conservative estimate of the future as well as the present.

Deducting 40 per cent for those who will never get out daily and those who for one reason or another must secure their exercise at some other time, we have a minimum of 3,000 for whose daily practice we should provide. This would mean 750 per hour, if equally distributed over the four hours available, but as all these hours are not equally favorable, as noted above, the requirement would probably rise to over 1,000 an hour between 3:30 and 5:30. As we have seen, the present capacity is less than 450 outdoors. This indicates a necessity for two to three times the present capacity to meet the need of the present and the immediate future, aside from any consideration of the space factor as influenced by the character of the activities for which facilities are required or desired.

Space Required. The consideration of *numbers* outdoors presents largely the same problem as indoors, except that the time spent by an individual in any sport or game tends to be much longer than indoors, and, therefore causes greater congestion in the late afternoon. Also the evening hours cannot be made to supplement the afternoon period to the same degree. So far as *space* is concerned, however, the problem is one of much greater difficulty because the character of the activities is such as to require much more ground per student. And the weather factor that is eliminated indoors is of prime importance outdoors. To the extent that bad weather reduces activity below the normal, fine weather stimulates it in the opposite direction and creates a necessity for liberal provision of playing spaces to accommodate the increased numbers who turn out under its influence.

In estimating the amount of space required to accommodate 1,000 or more persons at the same time outdoors in voluntary

athletic games and sports, consideration must be given to the relative interest of the participants in the various activities as well as to the relative space requirements.

Relative Interest. At the period of college life the interest of the player in ball games is at its maximum, with baseball first and tennis probably second, football, soccer, and hockey following in a group together. Tennis is almost equally popular in fall and spring; baseball in the spring probably outnumbers the other three combined in the fall, except that hockey and modified baseball command about equal interest on the part of college women. The individualistic types of exercise command a very much smaller degree of interest except in the case of swimming, which, however, is a summer activity. Cross country running and hiking are practiced by relatively few, but are increasing in interest and have the advantage of requiring no prepared spaces. Boating and canoeing command relatively large interest measured almost entirely by the number of available boats and canoes. Track and field events have a natural interest for a much smaller number than the various ball games, but have the advantage of lending themselves readily to class organizations, and so provide a valuable mode of handling large numbers in prescribed activities on a relatively small area.

A quarter mile running track with its enclosed area provides ample area for all men interested in track and field events and is the minimum provision that can be made for this activity. Women require relatively very much less space for these events.

Tennis and baseball with equal privileges would interest approximately the same number of people. As they are both at their maximum during the same season, their combined requirements constitute the major space factor. The same space used for baseball in the spring will serve for football and hockey fields in the fall. Separate consideration must be given to fields for intercollegiate games.

A tennis court requires 120 x 50 feet and is used on an average by three persons at a time (singles and doubles alternating). This is equivalent to about 1/20 of an acre per person.

A regulation baseball field requires approximately three acres but for general intramural purposes outfields may be permitted to overlap to such extent as to reduce this to two acres, approximately 1/10 of an acre per person, or twice as much as for tennis.

It is estimated that the relative interest of men in the various activities in the spring season with adequate facilities would be about as follows:

Baseball	40%
Tennis	30%
Track and field.....	10%
Boating and canoeing }	20%
Hiking	

In the case of women students the proportion for tennis would probably approximate or exceed 40 per cent in the spring with 30 per cent baseball but with a reversal of these figures in regard to hockey and tennis in the fall.

With a probable average at the most favorable hour of 1,000 persons, the space requirements on the basis stated would be about as follows:

MEN—750 PER HOUR

Baseball	300—15 diamonds	30 acres
Tennis	225—75 courts	12 "
Track and field.....	75—One ¼ mile track.....	7 "
Varsity baseball	—One diamond	4 "
Boating	150—Boat house	
		<hr/>
		53 "

NOTE: The track infield would supply the space for the varsity gridiron and the varsity diamond outfield would provide a varsity practice gridiron.

The space for track and field takes into consideration accommodations for from 20,000 to 40,000 spectators.

WOMEN—250 PER HOUR

Hockey	100 (Fall) — 3 fields	4½ acres
Tennis	100 (Spring)—30 courts	5 "
Track and field.....	25 — One ¼ mile track.....	1 "
Boating, etc.	75 — Boathouse	
		<hr/>
		10½ "

Field Houses. Supplementing these outdoor facilities there must be ample and convenient quarters for dressing, bathing, toilet, and shelter sufficient to handle the maximum number conveniently and quickly.

For the men this needs to be done by eventually locating the indoor plant in immediate contiguity to the main fields. For several years to come space under the permanent stands or a temporary Field House must be provided.

For the women the fields cannot be located within less than six blocks of their present gymnasium which is permanently located so far as the present plans are concerned. It follows,

therefore, that a Field House with full complement of dressing and bathing facilities and with shelter space of sufficient area to serve as a supplementary exercise room in wet weather is an absolute necessity.

Aquatics. There remains to be stated the need of facilities for canoeing and rowing.

There is no provision for the aquatic sports of the women. The immediate need for such is apparent. A house capable of storing several eight-oar barges and large 16 to 24 paddle canoes, and row boats and canoes having a capacity of 50 persons or more per hour would ensure tremendous interest in this valuable activity, make possible the use of a facility largely idle at present and permit the establishment of boating as a required class activity with the result of reducing in some measure the awful annual fatality list from overturned boats, besides giving the student a method of exercise and recreation suitable in all his after life. This house should also serve the swimming needs of the women in the summer session and should have a dressing capacity of 100 or more per hour with necessary toilet and bathing facilities.

The men's boathouse is 21 years old and is utterly inadequate to the present demands. Repairs and alterations will temporarily relieve this condition and permit some extension for a few seasons, but with the provision of row boats and large canoes for the men, as contemplated for the women, the capacity of the present buildings will be quickly reached. Also, with the eventual removal of the gymnasium there will arise the necessity for separate dressing, bathing, and toilet facilities for which the present buildings are unsuitable. Of pressing importance, aside from these considerations of the future, is the ever present danger of fire in a tinder box filled with most inflammable material.

The eventual need is for a commodious fireproof building, properly heated and ventilated with every administrative and social convenience and with room for twenty or more eight-oar shells and barges, four-oars and singles in proportion, a coaching and a patrol launch, and row boats and canoes having a capacity of 150 students per hour; besides storage room for 100 or more canoes privately owned by students and faculty members.

Until such provision is available the completion of the alterations and additions authorized by the legislature of 1913 will provide the necessary space for further growth and development.

Both boat houses should have ample pier space for swimming and for loading and unloading boats and canoes safely and quickly. These should be supplemented by permanent breakwaters affording protection from rough water and providing a safety harbor in case of storms.

STUDENTS IN PHYSICAL EDUCATION ACTIVITIES

Men

Summary of First Semester, 1913-1914

Men—Undergraduates—Nov. 1, 1913.....	2,915
General Gym. class (Games only—Oct. and Nov.).....	678
*Athletics and Aquatics—	
Intercollegiate	115
General	701
Corrective	816
Corrective	180
56.6% of University enrollment	1,654

Summary of Second Semester, 1913-1914

Men—Undergraduates (net)	2,639
General Gym. class (Games only—April and May).....	542
*Athletics and Aquatics—	
Intercollegiate	257
General	651
Corrective	908
Corrective	189
62.1% of University enrollment	1,639

This does not include men playing tennis, handball, intercollegiate and interfraternity baseball, bowling, canoeing, and swimming *outside* of class and team hours.

Of 1,317 new male students examined by the Medical Adviser there were:

Prohibited from strenuous, competitive sports.....	509, or 39%
Restricted to individual exercise.....	190, or 14%
Unrestricted	618, or 47%

Women—Summary for Year 1913-1914

Women—University enrollment for year.....	1,141
Enrolled for Physical Education—	
Freshmen and Sophomores.....	495
Upperclassmen	247
65% of University enrollment	742
Prohibited competitive sports.....	206
Athletics, etc.	536

* NOTE: The activities outside of the general classes which have been elected by students include the leaders corps, general gymnastics, apparatus, track and field, rowing, football, soccer, swimming, basketball, cross country, baseball, wrestling, fencing, hockey, and hiking.

MEN'S ATHLETIC FACILITIES

Institution	No. male Students 1912-13	ATHLETIC FIELDS			BASEBALL DIAMONDS		FOOTBALL FIELDS		TENNIS COURTS	MAINTAINED BY		SOURCE OF FUNDS		
		Total acres	Varsity	Intra-mural	Varsity	Intra-mural	Varsity	Intra-mural		University	Athletic Assn.	University	Student Fees	Gate Receipts
Harvard.....	4,523	65 ¹	.....	.....	1	5	1	4	40	.....	/	.....	.....	/
Princeton.....	1,568	38	20	18	1	4	2	3	24	In. Mur.	Var.	.....	/	/
Michigan.....	4,250	77.45	38.7	38.75	1	6	1	5	29	.....	/	.....	26,500	45,000
Notre Dame....	1,028	.....	20 ⁽³⁾	1	10	2	5	?	.....	/	.....	\$10 per Student	/
Chicago.....	3,488	12	.....	.....	1	1	1	1	29	/	.....	.....	/	/
Illinois.....	3,824	72	12	60	2	8	2	3	21	In. Mur.	Var.	1	.....	/
Indiana.....	1,123	6	3	3	1	2	1	1	5	/	.....	1	.....	.....
Iowa.....	1,288	6	.....	.....	1	1	2	0	8	/	.....	.....	.....	/
Minnesota.....	3,181	20	(x)20	Drill Ground	1	2	1	1	15	Tennis	/	1	.....	/
Northwestern...	2,400	37	7	30	1	2	1	6	17	/	.....	1	/	.....
Ohio State.....	2,614 ⁽³⁾	1	5	1	2	10	.....	/	.....	/	/
Wisconsin.....	3,052	35 ⁽²⁾	(x)13	2	1	2 ⁽⁴⁾	2	2	20	/	.....	1	.....	/

NOTE: ¹ 25 acres undeveloped.² 20 acres undeveloped.³ General Campus.⁴ Temporary. Restricted space.

x Used for both Varsity and Intramural.

CONCLUSION

In concluding this report two tables are submitted, one summarizing the statistics showing the number of students participating in the registered activities of the men for the first and second semesters of 1913-14, and of the women for the year 1913-14 as a whole. The net result shown by this table is that *two-thirds of the entire undergraduate body* of the University have been registered and engaged in the activities of the department throughout the year. In addition thereto is a large proportion of students engaged in active outdoor sports in the fall and winter and spring of whom no record is kept nor can be secured.

The second table exhibits a comparison of the provision for men's outdoor athletics in twelve different large universities of the East and Middle-West. Study of this table shows the University of Wisconsin to be exceeded by eight of these institutions in the amount of space devoted to outdoor facilities; by seven of them in the number of fields for baseball and football; by six of them in the number of tennis courts. Yet but four of those so exceeding Wisconsin, as noted, have larger student enrollment and in two of these—Harvard and Chicago—a very large percentage consists of professional students not living upon or near the Campus. This table emphasizes the necessity for the development of this particular feature. The two tables together show the relatively large use that is being made of inadequate facilities at The University of Wisconsin.

Respectfully submitted,

GEO. W. EHLER,

Director, Department of Physical Education.

REPORT OF THE DIRECTOR OF THE WIS-
CONSIN FREE LIBRARY COMMISSION
AND THE LIBRARY SCHOOL
OF THE UNIVERSITY
OF WISCONSIN

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: As Director of the Library School of The University of Wisconsin, I have the honor to submit the following report for the biennial period ending June 30, 1914.

During the eight years which have elapsed since the establishment of the school the number in attendance has so increased that it has been necessary each year to add to the equipment in furniture, lighting, books, typewriters, and supplies, as well as to increase the instructional service. The curriculum has also been a matter of growth, the effort being for a wise correlation of courses, for the establishment of a proper relation between the theoretical and the practical and for the elimination of the non-essential.

GRADUATES

For several years the number graduating from the Library School of the University exceeds the number graduated from any other similar school in the country. In 1907 the number graduated was 22; in 1908 19; in 1909 19; in 1910 26 in 1911 24; in 1912 31; in 1913 32; in 1914 29. The number in the class which has enrolled and will probably graduate in 1915 is 36. The total number graduating up to and including 1914 is 202.

There never has been the slightest difficulty in obtaining positions for the graduates of the school. In 1913, out of 31 who were graduated, 29 had positions at the time of graduation. In

1914 out of 29 who were to graduate 26 had received appointments before graduation.

A very large percentage of graduates also remains in the profession. Of the 202 who have graduated, 23 have married, 3 are taking further work in educational institutions, 3 are incapacitated because of ill-health, 4 are detained by home exigencies, 3 are temporarily out of positions, 2 are not recommended because of lack of efficiency, and 164 hold library positions and are in active service. Although the number graduated is very much larger than the number of positions suitable for library graduates in this state, a very considerable number are located in Wisconsin. Of those graduating in 1913 seven went immediately into positions in Wisconsin libraries, while of those graduating in 1914 fourteen went directly to Wisconsin positions.

THE JOINT COURSE

The plan for a joint course offered by the Library School in connection with the College of Letters and Science, under which a student might work for a Bachelor's degree and at the same time complete the work required by the Library School, was changed during the last school year. As it now stands the work in the Library School is performed during the senior year. Juniors having 96 credits and having passed the entrance examination of the Library School at the end of their junior year are eligible to take the Library School course during their senior year. Twenty credits are allowed for work in the Library School, which, with the four credits allowed for a thesis, aggregate the number of credits required for graduation.

PUBLIC LIBRARIES AS LABORATORIES

In founding the Library School a new and theretofore untried method of library training was inaugurated. It might be termed the laboratory method. While in residence and taking the regular course of the Library School each student each week renders at least three hours of service in the Madison Public Library, performing in turn practically all of the various duties devolving upon the librarian of a public library.

This apprentice system has, to this extent, been employed by other library schools. In the Wisconsin Library School, how-

ever, the system is carried much further. From the beginning of the academic year until the first of February strong emphasis is placed upon the fundamental technical and professional courses. Then during the months of February and March the academic work in residence is given up and the public libraries of the state become the school's laboratories. Upon the first of February each student is sent out into a carefully selected library for practical work under conditions actually existing in public libraries. In planning the work, moreover, the instructors have in mind the principle that the services to be rendered by the student must be of definite value to the library in which they are performed, since work that is not of importance from the standpoint of the library is likely to be as unprofitable to the student as to the institution.

Each student must work from seven to eight hours, six days in the week, during the months of February and March, doing the regular work of the library—work which is often difficult and laborious. She is expected to work as intelligently and as faithfully as though a hired helper. She must submit herself to the direction and discipline prevailing in the local institution. Her work is supervised and inspected by the instructors of the school. At all times she is made conscious that unless her services prove of value to the library she can receive no academic credit in the Library School.

As a matter of fact this field work has proved of very substantial value to the libraries of the state. During the eight years since the school was established the students have rendered an aggregate of approximately 400 months of service to the public libraries of the state, and always to those libraries which have most needed assistance. Putting this in other terms, the service rendered gratuitously by the students of the school has amounted to the full time of 33 skilled workers each working for one year.

By these years of service new libraries have been organized and old libraries have been reorganized; new card catalogues have been made and old ones revised, modernized, and brought up to date; in many communities systematic co-operative work with the schools has been started; story hours have been established and conducted; the character of the book selection has been improved. Many other new lines of library activity have been instituted, and through publicity methods, suggested and worked

out by the students, the public has been informed of the old and new activities of the library. It is to be noted that this service has been rendered during the busiest months of the year for libraries.

While this service has been of incalculable value in the library development in the state, its greatest value has been in the training which it has given to the library students themselves.

Its special value may be thus stated:

1. Field work links theory with practice. It is placed in February and March and the curriculum is so planned that the fundamental technical and professional courses are completed before the work is assigned. This gives the students opportunity to apply in a practical and concrete way the lessons of the semester which has just closed.

2. The field work supplements the student's previous experience. Because of the entrance requirements for admission to the school, the faculty are in possession of much information regarding every student before the course begins; especially do we know of any previous library experience. If a student enters the school after several years of such experience, it is possible to round out that experience by giving her field work along entirely different lines, such as organization, serving as acting librarian, and even the visiting of libraries for the commission, thus putting her in training for a position on a library commission. If a student enters with little or no library experience, she is placed in one of the best organized libraries of the state where she will have opportunity to work as an assistant under the direction of a trained librarian.

3. Benefit results to the student through the change in the nature of her work. The variety between the class room instruction and the practical work is welcomed by the class. The interest and energy of the student in her work almost invariably increase during this period of field practice.

4. It affords an opportunity for testing the student's ability and initiative. The student works under the close observation of instructor and librarian. A more complete knowledge of her fitness to fill a position is the result; weaknesses and faults are seen and can be corrected. The test of actual work is fairer than one based upon academic scholarship. On the student's side the gain in confidence and poise is marked, and with these a knowledge of her strength or adaptability for each kind of work.

FIELD WORK IN 1913 AND 1914

For the biennial period 1913-1914, the field work of the Library School was carried out as usual.

In 1913, 37 libraries profited by the work of the students, and 35 students had the actual experience of working in libraries. The amount of work accomplished by the students aggregated a total of 65½ months of work for the state, the equivalent of the entire time of six skilled workers for a year.

In 1914, 31 libraries profited by the work of the students, and 35 students had the actual experience of working in libraries. The amount of work accomplished by the students aggregated a total of 61 months of free assistance to the libraries of the state, more than the equivalent of the full time of five skilled workers for an entire year.

A NEW COURSE FOR SPECIAL LIBRARIANS

In the year 1913-14 the Library School, in co-operation with the Legislative Reference Department of the State Library Commission, offered a new course of special training for legislative and municipal reference work and the various sociological phases of library service. This course prepares for distinctly specialized library work in the field of public affairs, as distinguished from the more general public library work. It is intended for college graduates with special aptitude and personal qualifications for this type of library service who have a definite preparation in political science, economics, and sociology. There is a demand for trained library workers in this field where knowledge of subject matter is of great importance. This course offers an organized training which supplements this knowledge of subject matter with the more essential of the technical and professional phases of library work necessary to insure good library administration.

Approximately one-third of the student's time is devoted to selected courses at the University, depending both upon the previous preparation of the individual student and the particular branch of library work he expects to enter. About one-third of the time is taken up with the bibliographic and technical library training. This includes the fundamental courses of library instruction so modified that the essentials of professional training

may be obtained through close application with a considerable saving of time. The remaining third of the time is spent in special instruction as to the methods and materials of special libraries, combined with actual practice in the legislative reference library and elsewhere. Research work upon practical problems arising in the work of various state and municipal departments is assigned to each student.

In the first year seven students, four men and three women, were admitted to the course. The work was carried through the two semesters of the regular University year, together with a month of apprentice work in some library of this special type.

DISBURSEMENTS ON BEHALF OF LIBRARY SCHOOL

The following is a statement of the disbursements made by the Library Commission for the maintenance of the school for the years ending June 30, 1913 and June 30, 1914, respectively.

In the item "salaries" is included the compensation paid those who do the regular instructional work in the Library School. This item does not include, however, the salary of the Secretary of the Library Commission who lectures and is ex-officio the Director of the Library School, nor the salary of other members of the commission staff who render services to the school. On the other hand the instructional staff whose salaries are included in this item perform duties for the Library Commission which are not strictly within their province as instructors, these services resembling more the extension work performed by other University instructors. The statement so far as this item "salaries" is concerned must be considered, therefore, as somewhat in the nature of an approximation.

	1912-13	1913-14
Quarters including fuel, janitor service, insurance, repairs, furniture.....	\$1,148.07	\$1,296.02
Salaries.....	8,781.95	10,657.45
Travelling expenses.....	1,241.41	779.33
Lectures, including expenses.....	628.85	520.25
Light, telephone, incidentals.....	294.25	242.76
Books, periodicals.....	396.18	426.01
	\$12,690.71	\$13,921.82

Respectfully submitted,

M. S. DUDGEON,

Director.

REPORT OF THE COMMANDANT

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: Complying with your instructions, I have the honor to submit to you the following biennial report for the Military Department of The University of Wisconsin for the period July 1, 1912-June 30, 1914.

ATTENDANCE

	1913	1914
Drilling	740	1,024
Exempt, permanent physical disability.....	40	50
Exempt, aliens	20	25
Exempt, previous drill.....	40	57
Exempt, adult specials.....	30	13
Exempt, normal graduates.....	30	10
Deferred, working way.....	147	64
Deferred, temporary physical disability.....	100	112
Excused, athletics	192	121
Total	1,839	1,481

The totals noted above are those reported at the annual inspection in May, at which time the Corps is always at a minimum. For example, December 1, 1913, there were 1,480 men under instruction and at the close of the first semester January 1914, there were 1,357 men taking drill.

ORGANIZATION

On my arrival here in January, 1913, the corps was organized as a regiment of 12 companies, a hospital company, an engineer company, and a band. The rapid increase in attendance

rendered necessary the organization of a fourth battalion composed entirely of sophomores. The great and growing interest in the band necessitated a "feeder" section. This has greatly improved the quality of playing and attendance in the main band. The director, Major Mann, now has available excellent understudy material for every position.

At the opening of the fall semester, the companies are much too large for four to drill on the floor at one time and much too large to be satisfactorily controlled by the officers. It is therefore recommended that the corps be organized as five battalions and divided into two regiments but leaving the extra regimental officers to a later date, when the added expense will be absolutely necessary.

The engineer company in 1913 constructed two permanent bridges of military types on the University Drive which were highly commended by the Federal inspector. In 1914 they built and laid out the target pit and range.

The hospital company, under the enthusiastic and efficient direction of Lieut. Colonel and Surgeon, J. C. Elsom, has acquitted itself creditably at both inspections.

WORK ON THE DEPARTMENT

On arrival here, it was found that the only method of imparting military knowledge to the officers and men of the corps was by means of evening talks, attendance on which was voluntary and averaged about 30. Bearing in mind the three-fold purpose of the department—to educate men to command infantry companies in time of need—to develop character—and to make better and stronger citizens, the Commandant, after consultation with President Van Hise and with the approval of the deans and faculty, abolished the evening lectures and substituted therefor two study courses which comprise military law, field engineering, field service regulations, military topography and sketching, war games, infantry drill regulations, guard duty, firing regulations and military hygiene. The official text and publications used in the army service schools form the basis of the work. Fifty-one different students took the

work during the past year. Graduation credit is allowed as for other scholastic electives.

As noted in reports of my predecessors, the work of the battalions is seriously interrupted by other necessary activities such as convocations, concerts, basket ball, etc. The Commandant, instead of entirely dismissing the ousted battalion or battalions, transferred them to the lecture auditorium of the Chemistry building and there gave talks on various phases of military life. His personal collection of lantern slides, many prepared especially for these emergencies, illustrating much of army life in the Philippines, Hawaiian Islands, and in the states, were used extensively. Lectures have also been given to the sophomore battalion (4th Battalion) twice a week during December, January, and February. The topics were as follows: (1) Extended Order, (2) Field Engineering, (3) Map Reading, (4) Security and Information, (5) Camp and Personal Sanitation, (6) First Aid, (7) What an Officer Must Know, (8) The Serious Side of Military Education, (9) Our Army and Citizenship, (10) Field Service Regulations (11) Military Defense of Hawaii, (12) Our Foreign Possessions—(four of these talks) (13) The Daily Life of the Soldier, (14) Theory and Practice in Rifle Fire, (15) The Other Side of the Peace Question, (16) Excused from Drill, If Not, Why Not?

The law provides that both freshmen and sophomores shall receive 84 hours a year of instruction. This has not been carried out with the second year class, largely because all efforts were directed toward close order drill. It is not well to require a man to repeat the simple movements of the recruit freshmen the second year. But beginning next fall, the sophomore will drill from October first on. This is readily done by giving them work of an advanced character—extended order, bayonet exercises, guard duty, map reading, company administration, first aid, camp sanitation, etc. All of these are subjects required by the war department, are all of great value to company commanders, and much of the work is of practical value to the civilian in time of peace.

Part of this is done on the drill floor and part of it in classrooms. A maximum of one third of the total time is authorized for theoretical instruction. We therefore set aside one hour a week for twenty weeks when each Captain has his com-

pany in a class room. There he quizzes his men in drill regulations, etc., demonstrates each new movement in squad company or larger unit, manual of arms, etc. This avoids explanations of an extended character on the drill floor where, owing to the noise and confusion, the explanations may not be heard at all and the student is precluded from asking questions. This method not only serves to advance the grade of the drill itself, but affords the officers a splendid opportunity to do actual teaching work and since the men better understand what is required of them, dissatisfaction is lessened. The plan has worked most satisfactorily all this year.

A much needed clerk has been authorized for the department thereby releasing Sergeant Atkins from the desk and permitting him to be of direct assistance to the Commandant as a drill master. The work of Sergeant Atkins has been most satisfactory, his loyalty, efficiency, and industry being exceptionally high.

The target work has been largely in the hands of the Rifle Club. This has had a total membership of 300 men, nearly all of whom were members of the corps. Certain changes have been made in the galleries whereby safety has been increased and capacity raised from four to six men at a time. It is, however, unsatisfactory as vibrations from the running track ruin accurate shooting.

The lighting arrangements are poor at best and accommodations totally inadequate. The rental of the state rifle range at Verona has been discontinued and by rigid economy the department has saved sufficient funds from this year's appropriations to construct a range on University ground. Approved by the President, Dean Russell courteously granted sufficient land for the purpose. This will afford a safe range back to 300 yards and will be within walking distance of all students. It is planned to make the gallery and range work essentially sophomore in character.

THE BAND

The band, having been divided into two sections, has steadily improved. With the organization into two regiments, the second section will become the band for the second regiment.

Care must be taken, however, that neither band becomes unwieldy. A limit of fifty pieces should be placed on the first and thirty on the second band.

UNIFORMS

Regent action during the past year has now made it possible to secure uniforms under contract at a cost of \$10.13. This insures correct fit, high quality, uniformity of shade, and a saving to the student of about \$4.25 per uniform. Provisions were also made for the disinfection, under the supervision of the Department of Clinical Medicine of second hand uniforms purchased by the students.

It is recommended that a dark blue flannel shirt be added to the uniform, for sophomore companies only, as their work is more active than that of the freshmen and the close fitting blouse will prove a great disadvantage as well as discomfort to the men.

ASSISTANT COMMANDANT

The services of retired Sergeant Major Atkins has been of great value to the department. His hearty and loyal co-operation in the plans of the Commandant have been beyond criticism. Now that the work of the department has been started on a progressive basis Sergeant Atkins will be given again the opportunity of being an Assistant to the Commandant in the instructional work instead of remaining a clerk. His long experience in drilling and training men is of even greater value than his clerical ability.

ATTITUDE OF STUDENTS

This has undergone a decided change for the better. Instead of endeavoring to avoid drill, the students appear desirous of taking it. Much of this feeling is due to the progressive character of the instruction, the lectures and study courses and the avoidance of the long and late drills heretofore held in April and May. With the addition of adequate gallery and range facilities now under way, added interest will be aroused.

The complete separation of the sophomore and freshmen classes and division into companies by colleges, will add an element of competition of great value.

THE ARMORY

This question has been argued and advocated for the past six years but no definite action has been taken. The present building while adequate twenty years ago when erected, is far too small for the use of both military and athletic departments.

The building is also the only one of sufficient size to accommodate convocations, concerts, etc. and is the only place in which the intercollegiate basket ball games can be played. This manifold purpose of the drill floor seriously interferes with drills, one battalion losing seven hours out of forty. These losses were unavoidable and every one has done their best to make dates which do not conflict with drill. The campus, a piece of ground 240 x 290 feet is entirely inadequate for our drill outdoors when eight companies have the use of the same space. Baseball games must be broken off in May and football games in October.

There is only one solution to the problem. A new Armory, built on Camp Randall as a central location, intended wholly and entirely for the Military Department and a drill ground at least 400 x 600 alongside for outdoor work. Illinois has recently erected such a building, New York is building one for Cornell, and Wisconsin should not be long behind.

THE COMMANDANT

The remuneration of the Commandant is insufficient considering the quantity and quality of the work accomplished. Army officers are under heavy expense in moving to Madison, they must purchase all the household furniture necessary for living, they are deprived of commissary privileges, and medical care for their families is not furnished by the government. During the past year the Commandant has prepared and delivered

more than twenty lectures where attendance was 300 or over each lecture, taught five hours a week in class room, kept office hours one to four hours a day depending on the time of the semester, and been present at all drills of all companies, an average of eight hours per week. The remuneration should be \$1,000.00 per year.

Respectfully submitted,

P. G. WRIGHTSON,
1st Lieutenant, U. S. Army,
Commandant.

REPORT OF THE COMMITTEE ON ACCREDITED SCHOOLS

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: The biennial report of the Committee on Accredited Schools and Appointments for 1912-14, during which period Professor Elliott was Chairman of the Committee for 1912-13, and the undersigned for 1913-14, is herewith submitted.

Tables I to IV set forth the essential statistical information so far as it relates to accredited schools, including for comparative purposes similar data from 1908.

TABLE I

	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14
No. of schools inspected, excluding inspection for vocational subjects.....	145	150	108	171	182	189
No. of schools visited by inspector of high schools	72	57	65	51	32	38
No. of schools dropped from the accredited list (by mutual agreement or for cause)	5	6	4	2	1	2
No. of schools added to the list.....	12	21	28	14	21	18
Total number of accredited schools.....	300	315	*250	271	291	305

* By action of the faculty the inspection and accrediting of secondary schools outside of Wisconsin were discontinued at the close of the academic year 1909-10.

The noticeable decrease in the number of schools visited by the Inspector of High Schools is caused by the increase in the time required for the work of appointments and by the increasing specialization of inspections by members of the faculty concerned in the training of teachers.

TABLE II

Showing Accredited Relation of the Free High Schools of the State

	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14
Total number (4 year course).....	268	286	292	300	318	322
Number accredited	186	205	229	238	258	269
Number not accredited.....	82	81	63	62	60	53

TABLE III

Showing Composition of the List of Accredited Schools

	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14
Free high schools.....	186	205	229	238	258	269
Independent high schools.....	14	13	12	12	12	11
Academies and private schools.....	20	18	18	18	21	26
Total number of accredited schools.....	220	236	259	268	291	306

Perhaps the most important development in the Committee's work has been the increase in the inspection of vocational subjects. Since the action of the faculty and Regents accepting for entrance to the University inspected and approved high school courses in agriculture, commercial work, domestic science and manual arts, there has been a very great increase in the number of these courses in the high schools. Table IV gives the number of schools inspected in special subjects and the number of schools accredited, without regard to the number of units accredited.

TABLE IV

	1911-12	1912-13	1913-14
Number of schools inspected for agriculture.....		20	18
Number of schools accredited for agriculture.....		15	23
Number of schools inspected for commercial work.....		90	50
Number of schools accredited for commercial work.....		67	82
Number of schools inspected for domestic science.....		5	.....
Number of schools accredited for domestic science.....	0	.....	.....
Number of schools inspected for manual arts.....	68	52	52
Number of schools accredited for manual arts.....	43	60	75

This table shows that inspection in agriculture, commercial work, and manual arts has been well provided for. No satisfactory arrangement has, however, been made so far for inspection in domestic science. The problem of a more specific definition of units in the vocational subjects will soon have to be faced.

The more important questions with which the Committee has been concerned are:

1. Greater uniformity in standards of inspection and accrediting. The increase in the number of inspectors both for academic and vocational subjects makes this an urgent problem. Frequent special conferences of all inspectors have been held during the past two years for the purpose of securing such standards and uniformity in evaluating work. It is hoped that during the coming year a more definite formulation will be made.

2. Increase in the frequency of inspections or a prolongation of an inspector's visit to the smaller high schools. The inspectors can be of the greatest service in the small high school where close supervision can not be given by the principal or superintendent, who has the supervision of both the elementary school and the high school and teaching in the high school to care for. Half yearly inspections in such schools would be of undoubted service.

3. With the increase in the number of schools accredited, inspection for purposes of accrediting has been subordinated to inspection for purposes of constructive service to the schools. By increasing the specialization of inspection through utilizing as inspectors those members of the faculty who are in charge of departmental teacher's courses, the effectiveness of the Committee's work has been greatly increased. The great increase in the number of requests from schools for special inspectors to assist in the solution of particular local problems is an evidence of this. Closer co-operation with the high schools in this direction will increase the efficiency of the University's service.

Table V summarizes the work of the Committee on Appointments to teaching positions.

TABLE V

	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14
Number of men enrolled.....	135	153	149	184	206	207
Number of women enrolled.....	327	312	392	481	456	476
Total	462	465	541	665	662	683
Number of graduating class—men.....				36	52	56
Number of graduating class—women.....				195	164	186
Total	176	152	178	231	216	242
Number of requests for teachers from Wisconsin	473	540	588	578	485	525
Number of requests from other states... (including from agencies).....	814 100	430 120	471 146	472 99	319 61	513 44
Total requests	787	970	1,069	1,050	805	1,082
Total number of requests excluding those from agencies.....	690	836	907	951	804	1,038
Number of requests for teachers from secondary schools	616	781	862	929	728	923
(including from agencies).....	42	77	89	61	45	40
Number of requests for teachers from higher institutions	171	189	197	121	83	159
(including from agencies).....	65	57	63	38	15	4
Number of requests for which Committee made no recommendation.....	86	150	207	207	159	166
(including from agencies).....	41	69	90	47	31	.....
Number of candidates securing new positions	316	340	364	446	414	466
Number of candidates remaining in old positions	53	57	65	77	91	85
Number of candidates giving up teaching	18	30	45	68	92	88
Number of candidates continuing study (not including assistants, fellows and scholars)	28	13	32	22	23	20
Number of candidates assisted by Committee	8	8	17	25	14	10
Number of students and graduates not enrolled who were assisted.....	304	325	348	248	230	257
Number of graduating class taking up other work				18	19	28
Number of graduating class securing teaching positions	38	21	34	58	32	46
Number of candidates still on list (many of these enrolled after opening of school year)	140	129	143	200	172	175
Number of reported vacancies.....	91	112	111	89	61	46
Number of candidates securing these positions					123	112
	16	11	9	9	18	9

In view of current interest in the Committee on Appointments a more detailed exposition of the work done during the past year is included in the following Tables VI and VII.

TABLE VI

Total number University graduates securing positions for 1914-15, up to Sept. 1, 1914	324
Number placed by the Committee.....	192
Number assisted by the Committee.....	35
Total number placed and assisted.....	227
Number placed and assisted to positions in Wisconsin (exclusive of the University)	141
Number placed and assisted to positions in the University (including 7 Teaching Fellows)	13
Number placed and assisted to positions outside of the State.....	73
Total number placed and assisted.....	227
Number placed and assisted to positions in Wisconsin High Schools.....	118
Number placed and assisted to positions in Wisconsin principalships and superintendencies	11
Number placed and assisted to Wisconsin County Training Schools.....	4
Number placed and assisted to Wisconsin Normal Schools and Colleges.....	3
Number placed and assisted to other positions in Wisconsin.....	5
Total number placed and assisted to Wisconsin positions.....	141

TABLE VII

Analysis of Class of 1914

Number receiving Teachers' Certificates in 1914 (exclusive of those receiving certificates and advanced degrees).....	198
Number of those receiving certificates registering with the Committee (exclusive of those receiving advanced degrees and certificates).....	181
Number of graduates of 1914 who secured positions.....	188
Number placed or assisted by Committee on Appointments.....	94
Number unassisted by the Committee.....	44
Number on Committee's lists.....	43
Total	181
Number placed or assisted to positions in Wisconsin High Schools.....	48
Number appointed to University (including Teaching Fellows).....	11
Number placed or assisted to other positions in Wisconsin.....	6
Number placed or assisted to positions outside the State.....	29
Total	94

The number indicated as still on the committee's list (43) includes those who are continuing work as graduate students, those who have withdrawn from candidacy this year, and those who have accepted other than teaching positions for the year, and those who have enrolled recently.

The placing of University graduates who are candidates for teaching positions in the positions for which they are best fitted and prepared, and where they can render the greatest service to schools and communities, is one of the most important functions of the University. This work has increased greatly from year to year, necessitating an increasing amount of time on the part of the Secretary. It is believed that efficiency can be best secured by a separation of the Committee on Accredited Schools and Appointments into two committees, or that the work of ap-

pointments be transferred to the Committee on the Training of Teachers.

On September 1, 1914, Professor A. W. Tressler, after fourteen years of efficient service as Inspector of High Schools and Secretary of the Committee on Accredited Schools and Appointments, tendered his resignation to the Board of Regents. His wide acquaintance with educational conditions throughout the State and his intimate knowledge of the professional qualifications and success of the teachers trained and recommended by the University make his resignation a distinct loss to the Committee and to the institution. The vacancy has been filled by the appointment of Professor Thomas Lloyd Jones as Secretary of the Committee and Inspector of High Schools, and Mr. D. W. Morton, Inspector of Commercial Work, as Assistant Secretary of the Committee on Appointments.

Respectfully submitted,

V. A. C. HENMON,

Chairman.

REPORT OF THE LIBRARIAN

*President Charles B. Van Hise,
The University of Wisconsin.*

Dear Sir: I submit herewith a brief report on the growth and condition of the University Library for the biennial period ending June 30, 1914:

GROWTH

The total number of bound volumes in the general University Library and the departmental libraries accessioned with it on June 30, 1912, was 165,613. On June 30, 1913, this number had increased to 175,390, and on June 30, 1914 to 186,307. The accessions for the biennial period, therefore, numbered 20,694. The statement of increase does not include the library of the Law School, now numbering 21,000 volumes, nor the Woodman Astronomical Library at the Washburn Observatory of 2,600 volumes. The total strength of the University Library and all of its branches at the present time is 210,000 volumes and 45,000 pamphlets.

The above figures do not give an adequate idea of the book resources available to all persons at the University, as the Library of the State Historical Society of Wisconsin, numbering 183,000 volumes and 188,000 pamphlets, and the Library of the Wisconsin Academy of Sciences, Arts, and Letters, of about 5,000 volumes, both located in the same building as the University Library, are equally accessible to all. The grand total of the three libraries is now estimated at 398,000 volumes and 233,000 pamphlets.

CATALOGUING DEPARTMENT

The cataloguing staff during the past two years has kept well up with the current accessions, has made excellent progress in the needed recataloguing of certain sections, and has practically completed the cataloguing of the library of the Wisconsin Academy of Sciences, Arts, and Letters. The assistant librarian in charge of this work reports that 9,776 new volumes were catalogued in 1912-13 and 12,463 in 1913-14. Figures such as those just given do not, of course, adequately show the amount of work done, as any given volume may be represented in the card catalogue by many entries. In addition to the above, during the biennium 8,000 German dissertations have been classified and catalogued.

LOAN AND REFERENCE DEPARTMENT

It is most difficult in a report of this character to give any adequate notion of the loan and reference work, which is perhaps after all the most important work which the library does, at least for the university of today. As stated in a previous report, statistics as to recorded loan and reference use have practically no significance, owing to the freedom given in the unrecorded use of books in the reading rooms, seminary rooms, and stacks. It has been possible of late years, with an enlarged and experienced loan and reference staff, to give much better service in this department, but there are still many possibilities of helpful service which the press of work at certain hours does not permit. The increased number of afternoon classes has relieved the pressure on the library at rush hours, and yet resulted in an increased use of the library over the entire working day.

Notwithstanding our growth, we constantly find it necessary to borrow material from other university and reference libraries for the use of instructors and advanced students. Unless the books are needed for actual class use, all transportation charges are ordinarily paid by the person for whose benefit the books are borrowed. The University is under obligations to many

institutions for such favors. To some of these same institutions and to others we have frequent occasion to loan from our collections. The library loans to other libraries, or educational institutions, for the use of individuals, and not ordinarily to individuals directly. Both libraries are especially glad to be of service to the college and public libraries of Wisconsin, and these libraries apply to us frequently for the loan of books and for bibliographical assistance.

The University Library and the State Historical Library cooperate freely with the Department of Debating and Public Discussion of the University Extension Division, and with the Wisconsin Free Library Commission in this matter of loans to libraries and schools in the state. Our feeling is that where books, not in immediate demand, can be of service to residents of the state outside of Madison, it is in accord with the general policy and aim of the University to make them available. We have not found that a liberal policy in this matter has seriously interfered with the use of the library by faculty and students. Such books are, of course, loaned for a limited period and subject to immediate recall, if necessitated by need as a class reference. Of course reference works in constant demand and books of great rarity or value cannot be available for such loans.

SUMMER SESSION

Until 1914 the library had never been open evenings during the summer session, as there had to that date not appeared to be sufficient demand to justify the increased expense. In the summer of 1913, the Director of the Summer Session and the Librarian became convinced that with the increased numbers the time had come for evening opening. The matter was presented to you and provision made in the budget of 1914-15 for evening opening during the Summer Session of 1914. The results justified the experiment, and we feel convinced that in the future the library during the Summer Session should be open the same hours as during the regular academic year. These hours are 7:45 a. m. to 10 p. m. daily except on Saturdays and Sundays. On Saturdays the library closes at 9 p. m. to permit the weekly cleaning of the reading rooms. These hours appear to meet adequately the present demands of both faculty and students.

BUILDING

The most important event in the history of the library during the biennium was, perhaps, the final completion and occupancy of the new northwest wing. The University Library, which had shared the southwest wing with the Historical Library for nearly fourteen years, was moved to the new wing during the Easter recess of 1914. The removal was so carefully planned and executed, under the direction of Assistant Librarian Burke, that there resulted little or no interruption in the use of the library by readers.

The University Library occupies all of the new wing except the top floor, which is used for museum purposes by the Historical Society. As a result, the University Library is most conveniently housed and, for the immediate present at least, has adequate space to shelve its accessions. It is a great relief to escape from the congested conditions of the past few years, which rendered impossible proper care of books and adequate service to readers.

On the completion of the new wing, the library was able to give up its use, for administrative purposes, of room 118 on the first floor of the main building. By vote of the faculty library committee, this seminary room was temporarily assigned to the Department of Political Economy and the Department of Semitic Languages for joint use. The demand from other departments for more adequate accommodations for seminary room purposes could unfortunately not be met.

NEEDS

Under the heading of needs in previous reports, I have emphasized two matters, *viz.*, increased accommodations for book storage and the demand for more books. The first need has been adequately met by the new wing. The second need remains as urgent as ever *viz.*, the necessity of the continuance of a liberal book purchasing fund. Regarding this matter, I can do no better than reiterate the statement given in a previous report.

While the growth of the past few years is reasonably gratifying, the rate of growth must be accelerated if the library is to prove adequate to the needs of this rapidly growing university. While progress has been made, the library is still greatly inferior as a working library to those of many American universities with which The University of Wisconsin is proud to compare herself in equipment and work. It should be remembered that the growth of our library is of very recent date and that we have not the advantage possessed by many other university libraries of an extensive collection of books formed through many decades. This means of course that we are obliged to pay a much higher price for many important sets of books than it was necessary for these older libraries to pay. It is to be remembered also that from time to time the University has added new departments, such as those of the new Medical school, which have to be equipped from the ground up with expensive working collections in fields in which the University Library previously had little or nothing. All these elements combine to render the present book fund inadequate for the pressing needs of the various departments. With the present book fund, members of the faculty feel that we shall never catch up with our needs, and that a considerable increase in the annual book fund is therefore absolutely necessary. Next to an increase in the book fund, the permanency of amount is felt to be desirable. Such cuts in the book fund as have been necessary several times during the last few years, if repeated in the future, will greatly retard the orderly development of the Library. Hence an increased and permanent book purchasing fund seems to be the one great need of the library for the immediate future. The duty of a great library is both to provide adequately for the needs of the present generation and to build broadly for the future.

Respectfully submitted,

WALTER M. SMITH,

Librarian.

REPORT OF THE UNIVERSITY EDITOR

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: I submit herewith the following report on the work of the division of publications for the biennial period ending June 30th, 1914.

PROGRESS

Monographs: During the biennium just closed there were issued fifteen monographs embodying the results of special investigation and research work. This is the same number issued during the preceding biennium and during only two previous biennial periods was there a greater number of monographs issued. On the whole the standard of the monographs has been good and there has been considerable call for these bulletins. Since July 1st, 1913, as the result of a change in the state printing law, all University bulletins have been charged directly to University funds instead of being charged to the general state fund, as was formerly the case. This does away with the necessity of sending manuscript to the Governor for approval and disposes of one possible cause of delay.

Bulletins in the Engineering Series are now published under the direction of a committee of the recently organized Engineering Experiment Station but the former series has been continued and there has been no change in style.

The following table gives the number of monographs published during each of the past bienniums:

From July 1st, 1892, to June 30th, 1894.....	3
From July 1st, 1894, to June 30th, 1896.....	13
From July 1st, 1896, to June 30th, 1898.....	7
From July 1st, 1898, to June 30th, 1900.....	11
From July 1st, 1900, to June 30th, 1902.....	7
From July 1st, 1902, to June 30th, 1904.....	8
From July 1st, 1904, to June 30th, 1906.....	8
From July 1st, 1906, to June 30th, 1908.....	22
From July 1st, 1908, to June 30th, 1910.....	25
From July 1st, 1910, to June 30th, 1912.....	15
From July 1st, 1912, to June 30th, 1914.....	15

General Series: This series, which includes the catalogue and all bulletins of a general nature, shows a decided increase. As in the previous biennium, the publications of the University Extension Division have furnished the greatest number of bulletins in the General Series.

High School Series: This series, comprising manuals for the use of teachers in secondary schools, has continued to be extremely popular. While there were no additions to this series during the past biennium it was found necessary to print new editions of three of these manuals.

Syllabi: The number of syllabi, laboratory notes, and other pamphlets for the use of students has materially increased. Nearly all of these are sold to the students, at cost, so that in the end the University is repaid for the cost of publication. This method of furnishing books to students is, I believe, a very good one so long as it is confined to publications peculiarly adapted to Wisconsin students, or to publications which are in preliminary form and not ready for publication as general texts.

Job Work: As in the past, there has been a steady increase in the amount of job work. This is a natural result of the growth of the University and the work may be expected to increase every year.

COST AND SERVICE

As I predicted in my last report, the cost of all state printing was increased with the contract which became effective January 1st, 1912. However, it is expected that the contract which becomes effective, January 1st, 1915 will bring about an improvement in this matter. The printing law, as revised by the last legislature provides for a sliding scale for certain kinds of work and while the cost of the small jobs will be somewhat higher the saving on the large jobs will more than counterbalance this.

I am glad to be able to report a continued improvement in the service furnished by the State Printer, both as to the quality of the printing and the time required to complete jobs. Naturally, with as many rush jobs as are necessary, it is impossible at times to give some of the work as close attention as would otherwise be possible. There is also bound to be delay at times. These delays are in some cases the fault of the printer, in some

cases the fault of the man ordering the work, and at certain times of the year they are the inevitable result of the congestion of printing.

QUARTERS

In the fall of 1913 the office of the University Editor was moved to the Administration Building. This is the logical location for the office but the present quarters are badly cramped and the work could be much more efficiently handled if larger quarters were provided.

Respectfully submitted,

O. C. GILLETT.

University Editor.

REPORT OF THE BUSINESS MANAGER

INCLUDING FINANCIAL STATEMENTS FOR THE
YEARS 1912-13, 1913-14*

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: Dr. Hermon C. Bumpus took office as Business Manager of The University of Wisconsin March 1, 1911, and resigned November 1, 1914, to accept the presidency of Tufts College.

While still in office, he prepared the material included in his biennial report, but with his resignation the duty of preparing the introduction to that report and superintending the completion and issuance of the material has devolved upon his temporary successor, the Acting Business Manager.

The Business Manager, as executive head of those officers and employes of the University that are not attached to the instructional force, is entrusted with the responsibility of supervising business affairs in accordance with the regulations of the Board of Regents and reports upon the following matters entrusted to him.

1. The General Receipts of the University
2. The General Expenditures of the University
3. Improvements in the Methods of Conducting University Business
4. Improvement of the Buildings
5. The Construction of New Buildings
6. The Improvement of the Grounds

* A complete statement of the receipts and expenditures of the University for the biennium has been issued as a special publication (Bulletin Number 705) which may be had by addressing the Business Manager, Madison, Wisconsin.

7. The Enlargement of the Grounds
8. The Enlargement of the Equipment
9. The Enlargement of the Endowment Funds
10. Treasure Balances

THE GENERAL RECEIPTS OF THE UNIVERSITY

In order to simplify financial statements and to facilitate comparisons with other institutions, the receipts of the University are classified to correspond with the standard entries recommended by the Carnegie Foundation and are given in summaries on pages 356 and 357 for each of the years of the biennium.

Included in the financial transactions thus recorded are certain so-called "revolving funds", such as laboratory fees, dormitory receipts, etc. These are temporarily held by the State Treasurer, to be expended for the specific purpose for which received; but all these funds are not strictly comparable during both years of the biennium, as receipts from athletic games were handled by the Bursar as Treasurer of the Athletic Council during 1912-13. During 1913-14, under the law, this account was transferred to the State Treasurer. This change in the accounting system must be borne in mind in making comparisons between these two years of the biennium.

THE GENERAL EXPENDITURES OF THE UNIVERSITY

The aggregate of all expenditures of the University from receipts of all kinds for 1912-13 amounted to \$2,378,863.69; for 1913-14, \$2,805,206.15. This includes all expenditures of athletic funds, dormitory receipts, expenditures for building and permanent improvements, as well as expenditures of receipts from the federal government from sales of agricultural produce, and receipts from students for tuition, incidental and laboratory fees.

Summaries of expenditures are given on pages 360 and 361 for the respective years and are so arranged as to conform to the general divisions of the University and to give general information regarding the character of these expenditures.

In general, disbursements are charged directly to the various divisions of the University as far as practicable; but items including expenditures for dormitories, restaurants, and improvements

of grounds, as well as all items of new construction and land purchases, are grouped under Division 20, "Physical Plant".

The cost of heat, light, water, repairs, and janitorial service is grouped under Division 20 during the year and properly apportioned among the several divisions in preparing the summaries of expenditures.

In considering these expenditures, it is well to bear in mind that the money used for instructional purposes at Madison represents only a portion of the total, and that the University, in addition to performing this instructional work, is also engaged in extension and control work* about the State of Wisconsin, as well as in research work for the advancement of knowledge in many fields.

Expenditures for all of these activities are included in the summaries of expenditures, which represent moneys received from all sources, including the amounts shown in the following tabulation for the two years in question:

	1912-13	1913-14
Receipts from Athletic Council..... ⁽¹⁾	\$44,976.04
Receipts from produce sold (Agricultural College).....	\$124,369.70	141,662.80
Dormitory and dining hall receipts.....	79,539.76	131,897.49
Receipts from the Federal Government.....	80,000.00	80,000.00
Student tuition fees (net).....	75,047.50	86,832.50
Student incidental fees (net).....	165,947.73	180,897.16
Student laboratory fees (gross actual receipts).....	76,000.23	85,293.85
Student gymnasium fees.....	5,497.60	6,238.05
Interest on investments.....	31,874.54	28,463.69
Received from gifts.....	10,745.17	12,721.14
Received from various sources.....	15,777.72	* 48,840.43
Total.....	\$664,799.95	\$847,813.15

¹ In 1912-13 funds of the Athletic Council were handled by the Bursar as Treasurer of the Athletic Council and receipts and expenditures are not included in the University summaries. In 1913-14, this account was, by law, transferred to the State Treasurer, and receipts and expenditures included in the University accounts.

* Receipts from "various sources" include University Extension receipts from lectures and concerts, which amounted to \$1,254.80 in 1912-13 and \$32,040.80 in 1913-14.

Deducting the above total of receipts (\$664,799.95 for 1912-13 and \$847,813.15 for 1913-14) from other sources than the State of Wisconsin, will leave a total expenditure of \$1,705,194.23 for 1912-13 and \$1,946,915.09 for 1913-14, received from the State of Wisconsin.

These expenditures include moneys expended for buildings,

* Dairy tests, nursery inspection, etc.

land, and such permanent equipment as books, apparatus, furniture, etc. (\$583,338.27 for 1912-13 and \$636, 887.23 for 1913-14), leaving an expenditure for operation and maintenance (repairs) of \$1,121,855.96 in 1912-13, to which should be added an item of \$15,176.31 for laboratory fees refunded, or a total of \$1,137,032.27 for 1912-13. In 1913-14, these net operation and maintenance expenditures amounted to \$1,310,027.86, to which should be added an item of \$1,630.38 for laboratory fees refunded or a total of \$1,311,658.24.

It will be noticed that in the twenty-one divisions of the summary, such items as Administration, General Library, Physical Education, etc., are kept separate. These are properly University Overhead expenses, and if these items (1, 2, 3, 4, 11, 12, 17, and 20) are properly apportioned to the various colleges and other activities, the following total charges for each of the years of the biennium are secured:

TOTAL EXPENDITURES OF MONEYS RECEIVED FROM THE STATE OF WISCONSIN FOR OPERATION AND MAINTENANCE.

	1912-13	1913-14
5. College of Letters & Science.....	\$502,358.65	\$550,061.17
6. College of Agriculture	233,713.45	321,432.96
7. College of Engineering.....	118,746.94	119,123.17
8. Law School	27,517.27	30,944.93
9. Medical School	32,727.50	37,711.82
10. School of Music.....	15,665.59	16,596.60
	\$931,023.40	\$1,075,860.67
13. Summer Session	19,915.32	21,865.18
14. University Extension	126,500.88	155,789.28
15. Agricultural Institutes	21,875.21	22,245.89
16. Hygienic Laboratory	8,994.11	10,473.25
18. Washburn Observatory	9,316.13	9,711.45
19. Forest Products Laboratory.....	6,823.22	6,374.03
21. Stores	12,579.00	9,338.49
Total.....	\$1,137,032.27	\$1,311,658.24

These totals check with the items previously given for these expenditures.

It will be noticed that the last seven items (Nos. 13 to 21 inclusive) represent other activities than those of regular two semester resident instruction, and if these are separated from the total, it is evident that the net cost to the state for all operation and maintenance expenditures for resident instruction, including in Agricultural charges, all expenses of State funds for research,

extension, and control, amounted in 1912-13 to \$931,028.40 and in 1913-14 to \$1,075,860.67.

If these expenditures are divided between such activities as (1) extension and control work; (2) research work; and (3) resident instruction, the division will appear as follows:

EXPENDITURES OF RECEIPTS FROM THE STATE OF WISCONSIN FOR OPERATION AND MAINTENANCE 1912-13

	Extension and control work	Research work	Resident instruction of two semester students
5. College of Letters & Science.....		\$115,000.00	\$387,358.65
6. College of Agriculture.....	\$93,378.81	64,704.53*	75,630.11
7. College of Engineering.....		24,000.00	94,745.94
8. Law School		4,500.00	23,317.27
9. Medical School		13,000.00	19,727.59
10. School of Music.....			15,665.59
Totals	\$93,378.81	\$221,204.53	\$616,445.06

Total expenditures, \$931,028.40.

* The total expenditures of the College of Agriculture for research work in 1912-13 amounted to \$113,208.60, of which \$48,499.07 was received from other sources than the State of Wisconsin.

EXPENDITURES OF RECEIPTS FROM THE STATE OF WISCONSIN FOR OPERATION AND MAINTENANCE 1913-14

	Extension and control work	Research work	Resident instruction of two semester students
5. College of Letters & Science.....		\$125,000.00	\$425,051.17
6. College of Agriculture.....	\$139,972.07	75,454.83*	106,006.08
7. College of Engineering.....		24,000.00	95,123.17
8. Law School		5,000.00	25,944.98
9. Medical School		15,000.00	22,711.82
10. School of Music			16,596.60
Totals	\$139,972.07	\$244,454.83	\$691,438.77

Total expenditures, \$1,075,860.67.

* The total expenditures of the College of Agriculture for research work in 1913-14 amounted to \$127,179.19, of which \$51,724.36 was received from other sources than the State of Wisconsin.

In this tabulation, the expenditures for research in the Agricultural College are determined from their accounting records. Research expenditures for other colleges are estimated conservatively, using all information available on the subject.

In attempting to obtain unit costs, it is necessary to bear in mind that students in the "short" and "dairy" courses are in at-

tendance only fourteen weeks instead of two semesters (approximately thirty-five weeks) or 40 per cent of the regular time.

If the registration of all two semester students is taken (4,237 in 1912-13 and 4,686 in 1913-14) and to this is added 40 per cent of the registration in the "short course" (431 in 1912-13 and 450 in 1913-14) and "dairy course" (154 in 1912-13 and 155 in 1913-14), and 40 per cent of the forest rangers course registration in 1913-14 of 28 students, a total registration of 4,471 in 1912-13 and 4,939 in 1913-14 full time (two semester) students is obtained, which, applied to the above computation for cost, would indicate an approximate average cost to the state for all operating and maintenance charges of two semester resident instruction amounting to \$138.00 per student for 1912-13 and \$140.00 for 1913-14.

If the total charge of state expenditures for research work, amounting to \$221,204.53 in 1912-13 and \$244,454.83 in 1913-14, is included in the cost of resident instruction to the State of Wisconsin, the total, or \$837,649.59 in 1912-13 and \$935,888.60 in 1913-14, will represent the net cost to the State of Wisconsin for all operation and maintenance charges due to resident instruction and research work. If this is charged entirely to resident students, it will represent an average unit cost of \$187.00 in 1912-13 and \$189.00 in 1913-14 for each student in attendance for two semesters.

IMPROVEMENTS IN THE METHODS OF CONDUCTING UNIVERSITY BUSINESS

The expenditures of the various divisions of the University for any year are estimated in advance and presented to the Regents. These estimates are thoroughly examined in detail and, when adopted by the governing board, constitute the budget, which becomes the authority for all routine expenses. All bills are approved by the Regents before being forwarded to the Secretary of State and to the State Treasurer for final audit and settlement.

The budget items connected with the academic, instructional, and scientific work of the University are prepared by the President, with the assistance of the Deans, Directors, and other educational officers, and the business details are prepared by the Business Manager. The salaries of the instructional staff and

of laboratory helpers form thus a distinct category of expense as contrasted with wages of employes, the cost of general maintenance and operation expenditures connected with the improvement of and addition to the buildings and grounds.

The accounting system of the Physical Plant Division has been improved during the past biennium by keeping accurate records of all expenditures in greater detail, thus affording ready means for the checking of expenditures with requisition estimates. Improvements have also been made in the grouping of requisition records, thus enabling a more expeditious handling of orders, and checking of requisitions against budget allowances.

The general utility needs of the University have been co-ordinated by changing the title of the Superintendent of Heating Plant to that of Consulting Engineer, with duties involving the electrical and other utility needs, as well as the heating and ventilating problems of the University, thus securing a greater co-ordination of the physical and educational needs and uses of steam, water, and electricity.

The greatest single improvement in the method of conducting University business has been secured by the new contract for electric current. The preparation of plans, estimates, etc., in studying these needs of the University and in arriving at the final solution occupied considerable time, but the results secured by the new contract, under which the University installed its own sub-station and distribution system, have been most satisfactory. The installation, as completed, represents an investment of \$22,198.90 (estimate \$23,000.00), and the saving to the University in the cost of electric current for the last biennium has exceeded this investment.

Under the terms of the contract, there is considerable advantage gained by reducing the peak load, and the co-operation of all members of the staff is regularly requested during the time of peak with most satisfactory results. By changing carbon lamps to tungsten lamps and making other improvements in the illumination of the buildings, it has been possible to keep the peak down and thus secure considerable economy.

With the increased buildings and increasing use of electric current for ventilating fans and laboratory use, the quantity of electric current consumed has naturally increased, but in spite of this the total bill for electric current has been greatly reduced.

IMPROVEMENT OF THE BUILDINGS

The various schedules under Column E of the summaries give the details of all expenditures for the improvement of the various properties of the University. The principal improvements to be mentioned are: new roof on North Hall, South Hall, and Agricultural Hall; the painting of University, North and South Halls; the addition of twelve showers and eighty dressing rooms in Lathrop Hall; and changes in the basement of Music Hall to permit the construction of a number of practice rooms.

Other minor improvements have been made to a number of buildings to meet changing conditions and requirements of various departments.

THE CONSTRUCTION OF NEW BUILDINGS

During the biennium, the following buildings were completed: the clinical laboratory was occupied in November, 1912, and offers greatly needed facilities for the medical examination of students. The west wing of the Chemistry Building was completed in March 1913 and occupied in the following September. Barnard Hall, the women's dormitory, was entirely constructed during the biennium, being completed in June, 1913, and occupied in the opening semester of October. The Home Economic and University Extension Building was begun in 1912 and completed in 1914. The Agricultural Chemistry Building was also started in 1912 and finished in 1913. The Wisconsin High School was begun in July 1913 and occupied in September 1914. In addition, a number of small buildings have been erected for the College of Agriculture, including the laboratory for the production of hog cholera serum, two hog barns, a plant pathological greenhouse, fire-proof stack room adjoining the Agricultural Sub-stations located at Ashland, Spooner, and Marshfield. In addition to this, the northwest wing of the State Historical Library was put under construction in July 1912 and occupied in September 1914.

THE IMPROVEMENT OF THE GROUNDS

Considerable progress has been made in improving the grounds of the University by making the drives of a far more permanent character, using cement on many of the steepest drives of the

upper campus and materially improving the appearance of the University grounds, particularly on the Park Street and University Avenue approaches.

THE ENLARGEMENT OF THE GROUNDS

Payments have been made on Eagle Heights Farm under the action of the legislature, leaving one payment to be made in the first year of the coming biennium. Over \$100,000 (\$101,800) has been expended for some fourteen parcels of land, principally city lots, and including a sixty acre addition to the Hill Farm of the University.

With these purchases and the options which have been secured during this biennium, the University is gradually acquiring control of the available contiguous property between University Avenue and Linden Drive, an investment whose value will increase materially with the growth of the University.

THE ENLARGEMENT OF THE EQUIPMENT

At the beginning of the biennium, a combined value of the University inventory as recorded by the Secretary was \$1,156,115.09, July 1, 1912. The corresponding value June 30, 1914, was \$1,369,741.93, an increase during the biennium of \$213,626.84. This represents books, apparatus, furniture, machinery, tools, and live stock.

Column F of the summaries will indicate the entire capital expenditures of each year, which are shown in detail in succeeding schedules.

THE ENLARGEMENT OF THE ENDOWMENT FUNDS

The invested funds of the University are comparatively small. These are shown in Schedules P-1, Q-1, and Q-2. On July 1, 1912, the reserve fund consisted of the following:

"University Fund"	\$232,796.50	
"Agricultural College Fund".....	308,594.61	
University Trust Funds.....	129,493.78	
	<hr/>	\$665,884.80

On June 30, 1914, the funds were as follows:

"University Fund"	\$232,701.50	
"Agricultural College Fund".....	308,594.61	
University Trust Funds.....	142,788.60	
	<hr/>	679,084.71
Increase for the biennium.....		<hr/> \$13,199.82

In addition to the permanent funds of the University, a number of smaller donations are frequently given for designated purposes, and these gifts are frequently renewed from year to year.

TREASURE BALANCES

The letter of the State Treasurer, given on page 358, gives an outline of the transactions that have taken place in his office so far as they affect the University, and shows a balance in the University Fund Income, June 30, 1914, of \$307,220.91, exclusive of building appropriations. The legislature of 1913 put the University strictly on an appropriation basis, setting aside the balance, June 30, 1913, of (\$274,783.52), and all moneys belonging to University Fund Income by reasons of appropriations in force at that date are made available to the Board of Regents of the University for carrying out the purposes for which such appropriations were made and for the payment of indebtedness incurred prior to July 1, 1913; and also providing that money not required for either of these purposes shall be available on and after July 1, 1913 to meet appropriations made from the University Fund Income, and providing that on July 1, 1914, the balance then remaining should be available for operating expenses for the fiscal year beginning July 1, 1914. This balance July 1, 1914, amounted to \$120,211.56, the reduction being due to expenditures of money for purchase of land.

Respectfully submitted,

H. J. THORKELSON,

Acting Business Manager.

REPORT OF THE CONSULTING ENGINEER

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: I beg leave to submit the following brief report regarding the operation of our Central Heating Station for the last biennium, together with a report covering the electric sub-station for the same period.

The following table will indicate the buildings heated from the central station during each year since 1906-07, the total cubical contents of these buildings and the square feet of direct and indirect radiation connected to our distribution system.

The indirect radiation takes about four times as much steam per hour as the direct, but as it is in use for only eight hours instead of twenty-four, we consider its operating cost equivalent, in terms of direct radiation is practically as $1\frac{1}{3}$ is to 1, with the results indicated in the summary.

BUILDINGS HEATED, 1906-07

Name	Cubical contents	Sq. ft. direct radiation	Indirect radiation
University Hall	682,500	4,632	2,000
South Wing, U. H.	518,320	5,000	2,000
North Hall	331,655	1,590	1,440
South Hall	331,655	2,454	450
Chadbourne Hall	1,113,600	9,983	.....
Music Hall	780,000	1,909	224
Science Hall	1,751,310	11,488	929
Chemical Engineering Building.....	450,000	4,284	399
Engineering Shops	865,125	1,689	583
Mining Laboratory	240,700	440	280
Engineering Building	746,144	7,426	1,048
Law Building	401,625	2,625	1,320
Administration	93,400	1,256	.....
President's House.....	130,370	998	750
Chemistry Building.....	1,420,400	10,084	4,204
Agricultural Hall	1,014,000	8,832	1,893
Dairy Building	300,000	553	791
Soil Physics	247,500	1,855	.....
Old Greenhouse	37,500	3,387	.....
Gymnasium	1,640,500	1,640	4,762
Library	1,933,000	15,579	4,785
Pumping Station	60,000	295	.....
Dairy Power House.....	90,000	350	.....
Total	15,179,304	98,499	27,808

BUILDINGS HEATED 1907-08

1906-07	15,179,304	98,499	27,808
North Wing U. H.	518,320	5,000	2,000
Agricultural Engineering Building...	345,000	3,721	2,169
Agronomy Building	193,536	2,627	1,240
Hydraulic Laboratory	211,680	1,934	.....
Total	16,447,840	111,781	33,217

BUILDINGS HEATED 1908-09

1907-08	16,447,840	111,781	33,217
Central Heating Plant.....	1,011,900	1,876	1,578
Dean of Agriculture.....	92,400	680	360
Total	17,552,140	114,337	35,067

BUILDINGS HEATED 1909-10

1908-09	17,552,140	114,337	35,067
Lathrop Hall	1,476,000	7,246	7,578
Prof. Humphrey	50,400	400	160
Stock Pavilion	1,260,000	2,823	2,040
Total	20,338,540	124,806	44,835

BUILDINGS HEATED 1910-11

1909-10	20,338,540	124,806	44,835
Engineering Wing	301,815	2,248	600
U. W. Physician	47,400	570	.....
Utility Shops	297,375	2,142	.....
Forest Products	573,600	4,744	.....
Dairy Laboratory	144,337	1,808	.....
Greenhouse	169,464	4,152	.....
Warren Street House.....	45,000	480	.....
Total	21,917,531	140,945	45,435

BUILDINGS HEATED 1911-12

1910-11	21,917,531	140,945	45,435
One-half Biology	599,225	4,623	2,385
New Horticultural	325,639	2,607	685
One-half Gymnasium Annex.....	154,556	1,000	.....
Total	22,996,951	149,175	48,505

BUILDINGS HEATED 1912-13

1911-12	22,996,951	149,175	48,505
One-half Biology	599,225	4,623	2,385
One-half Gymnasium Annex.....	154,556	1,000	.....
Clinical Building	112,400	1,900	.....
Chemistry Wing	545,232	6,212	.....
One-third Barnard	215,894	2,000	.....
Greenhouse Addition	17,600	626	.....
Total	24,641,868	165,536	50,800

BUILDINGS HEATED 1913-14

1912-13	24,641,858	165,536	50,890
Two-thirds Barnard	431,789	4,108	.....
Home Economics	746,232	7,078	Ind. of 1,224 not used
Agricultural Chemistry	658,249	5,121	720
Two-thirds Wisconsin High School..	599,385 (+299,943)	5,686 (+2,844)	346 (+172)
Total	27,078,013	187,529	51,956

SUMMARY

Year.	Sq. ft. direct radiation.	Sq. ft. indirect radiation.	Total equivalent direct radiation.	Total cost of "heat and water."
1906-07	98,499	27,808	135,576	\$78,487.65
1907-08	111,781	33,217	156,070	61,476.74
1908-09	114,337	35,067	161,098	72,427.15
1909-10	124,806	44,835	184,586	79,186.15
1910-11	140,945	45,435	201,525	108,529.66
1911-12	149,175	48,505	213,848	108,611.10
1912-13	165,536	50,890	233,389	97,959.30
1913-14	187,529	51,956	256,803	94,294.34

In order to determine the cost of heating, it is necessary to separate the heating cost from the cost of steam for other purposes. After considering these items in detail, the following Table of Unit Costs has been prepared, showing in the last column the cost per equivalent square foot of direct radiation for each of the last eight years:

TABLE OF UNIT COST

Year.	Ratio heating demands to total steam demands.	Total cost of heating.	Cost per equivalent sq. ft. d. rad.
	%		
1906-07	65	\$51,000.00	\$.377
1907-08	67.5	41,000.00	.265
1908-09	67.7	49,000.00	.304
1909-10	70	55,000.00	.300
1910-11	71	77,000.00	.382
1911-12	71	77,100.00	.361
1912-13	72	70,500.00	.305
1913-14	71	67,000.00	.262

The high cost of 1910-11 is largely due to the coal strike of the Illinois coal field, which compelled the purchase of a large quantity of coal from the docks at Milwaukee at a higher cost,

and in addition to this, the coal in the University bins caught on fire, resulting in a most serious loss of coal and attendant high cost of fighting the fire, which continued for weeks. The results on the whole are quite gratifying. The improvement in costs of the last biennium is largely due to improvements which have been made during these years in the operation of the plant and to changes in the distribution system. The moderate weather of the last winter is also reflected in the unusual low unit cost.

Possibly the greatest single gain in operation is due to the new high pressure line in the tunnel from the Heating Station to the Pump House, enabling us to put our larger heating mains on a lower pressure, with a resultant reduction in radiation loss.

This change, which cost approximately \$12,000, enables us to utilize *all* the exhaust steam available at the engines over the entire University heating system instead of over a small portion as in previous years. This also enables us to maintain a higher temperature of return water to our boilers, with the resultant increased evaporation per pound of coal.

In constructing the new buildings, we have attempted to keep in touch with the latest developments in ventilation. Lathrop Hall has perhaps the most powerful ventilation system of any of the University buildings, but our new Wisconsin High School represents a much greater advance in that our ventilating system is arranged to recirculate the air and wash it, thus removing odors and bacteria, humidifying the air and saving the usually enormous heat loss in cold weather, attendant upon the older systems of heating air and blowing it through rooms and out of doors.

Another very decided improvement which has been recently made at the central station has been the development of a flat arch over the furnaces. This was tried experimentally one year on boiler No. 5 and we have every confidence that the cost of furnace repairs will be reduced to less than $\frac{1}{3}$ of the former figure. The furnace design is largely the work of our chief operating engineer, Mr. J. M. Smith, and is resulting in increased economy and better combustion, in addition to the increased advantage of longer life and reduced repair cost.

Considerable improvement has been made during the past biennium in supplying the electrical needs of the University.

In the summer of 1912 a contract was made with the Madison Gas and Electric Company which has resulted not only in a large saving to the University, but also in a more efficient and reliable distribution of electric current for light and power to the different buildings.

By the terms of this contract electrical energy is delivered to the University at the Heating Station over a separate feeder extending from the company's power station, and the distribution from this point is taken care of by the University over its own lines. \$22,198.90 (estimate \$23,000.00) was expended in constructing an electrical sub-station in the Heating Station, in equipping this sub-station with a switchboard and machines, and in installing a distributing system on the grounds.

The following table gives the cost of electrical energy to the University for the last four fiscal years. (This includes some charges for gas for lighting purposes, which can not be easily separated from the accounts.)

Fiscal year	Cost of electrical energy	Saving over 1911-12
1910-11	\$24,347.66	.....
1911-12	27,650.26	.....
1912-13	18,854.39	\$8,795.87
1913-14	19,245.92	8,404.34
		\$17,200.21

The saving shown above is all the more remarkable when it is considered that the following new buildings were added during the last biennium:

Biology Building
 Barnard Hall
 Clinical Laboratory
 Agricultural Chemistry Building
 West Wing of the Chemistry Building, and the
 Home Economics and University Extension Building.

It is estimated that the saving, if computed on the basis of the cost of electric current in 1911-12, has, during the last biennium, exceeded the total investment. Credit for the success of the installation and operation is due to Professor John R. Price.

A further comparison of the quantity of electric current con-

sumed during each of the last five fiscal years and the approximate average price paid per Kilowatt hour is indicated in the following table:

Fiscal year	Kilowatt hour	Approx. aver. price per kilowatt hour paid to Madison Gas & Elec. Co.
1909-10.....	315,407	\$.0593
1910-11.....	414,379.5	.0588
1911-12.....	421,040.5	.0564
1912-13.....	587,679	.0239
1913-14.....	753,200	.0182

The new sub-station went into operation about the first of November, 1912, and its full effect on unit cost is evident in the report for 1913-14. This new contract required additional expense on the part of the University by reason of sub-station attendance, etc., and these expenses are all included in the table showing the total cost of electrical energy.

One of the difficult situations to be met is found in the large number of 500 volt direct current motors about the University. The cost of changing all of these at one time is prohibitive, but we have, during the past year, changed the motors at the Central Heating Station, Service Building, and Chemistry Building from direct current to alternating current, with a saving of fully 20 per cent in the current consumed at these points. This enables us to supply increasing demands for current for power without increasing the capacity of our motor generator sets at the sub-station.

We hope, in the near future, to extend the alternating current power line as far as the pumping station, and gradually substitute alternating current for direct current power.

A great deal of work has been done in preparing plans and estimates for a steam generating plant arranged to use all of the steam required for heating purposes in generating electric current of a quantity fixed by the heating demands for steam.

This problem presents a great many complications, but if we are successful in securing a market for this electric energy, we will probably succeed in reducing still further the cost of heat and electric current to the University.

Respectfully submitted,

H. J. THORKELSON,

Consulting Engineer for the University.

REPORT OF THE ARCHITECT

*President Charles R. Van Hise,
The University of Wisconsin.*

Dear Sir: In reply to your request I submit the following description of the buildings occupied during the biennium just past:

The Athletic Annex occupied in January, 1912, may be included in the list, although I believe it was constructed from previous appropriations. This building, located north of the Men's Gymnasium, consists of a single room for athletic practice, 82 feet wide by 190 feet long, and has a total area of 17,000 square feet including entrances. The building is faced with red brick and is supported by steel trusses. The earth floor is arranged for a running track and ball field. The cost of construction was \$15,000.00, about 5 cents per cubic foot.

The Clinical Laboratory, occupied in November, 1912, consists of two parts,—the old portion, previously known as the Olin House, and a new portion 36 feet wide by 68 feet long containing a basement and first story. Old and new portions together comprise a floor area of 8,500 square feet. The cost of the new part was \$12,100 or 19.8 cents per cubic foot. This is faced with red brick and has concrete floors, sound proof partitions, etc., forming a series of consultation rooms for medical examination of students.

The Biology Building was occupied in August, 1912. This building comprises a main portion 49 feet wide by 240 feet long, including basement, ground floor and four stories; together with an auditorium portion 74 feet by 50 feet in size, containing a sub-basement, basement, first and second floors. The floor area of the entire building exclusive of the green-

houses is 80,000 square feet. The cost of construction was \$200,000 or 16.7 cents per cubic foot. The building is faced with Madison sandstone and the construction is fireproof in character. The building, while in the same general style as University Hall, has a rather more severe architectural treatment. The main entrance on the north opens into a large foyer in which are exposed Biological specimens of general interest. From the foyer stairways lead to the various parts of the building and from it also, access is obtained to the auditorium, seating about 400. The other portions of the building are divided into laboratories, class rooms, offices and work rooms of various sizes. A photographic gallery is constructed in the roof space. Beneath the auditorium, the laboratories open directly into greenhouses of considerable extent, divided into sections for the various branches of botanical study. Adjacent to the laboratories in the east wing is a vivarium of glass and iron for the cultivation of zoological specimens. It is intended at a future time to add wings on the east and west of this building as required.

The West Wing of the Chemistry Building was completed in March, 1913, and occupied in the following September. The portion facing on University Avenue is 110 feet long by 51 feet wide and contains a basement and four stories of chemical laboratories. A wing is extended also along Charter Street a distance of 92 feet, with a width of 48 feet, basement and one story high. The laboratory on the first story extends through the entire north and south length of the building, 143 feet by 48 feet, and is considered unusually large for a single laboratory. The building area is 30,000 square feet. The cost was \$72,150 or 13.2 cents per cubic foot. This building is faced with buff vitreous brick with cut stone trimmings and is constructed with concrete floors, tile partitions and concrete roof. It constitutes the first finished portion of the Chemistry Building and indicates the style in which the building will be carried out.

Barnard Hall is the first building entirely constructed during the biennium, 1912 to 1914, being begun in March, 1912, and completed in June, 1913. It consists of a central portion, running north and south with wings extended eastward and enclosing a paved court with balustrades and steps down to

the lawn. The building comprises four stories of dormitories and an attic story for the accommodation of help. The cost was \$123,500 or 19.07 cents per cubic foot. The total floor area is 35,000 square feet. It also is faced with Madison stone, constructed with fireproof floors and covered with tile roof. While the building conforms to the University style of architecture, it is more charming and informal in treatment. The rusticated stone work and the detail of the cornice gives an added interest and corresponds to the domestic character of the interior. There are 140 dormitory spaces of which 133 are rented to students, the others being used for the matron's suite and general requirements of the building. On the first floor are the parlors and in the basement the dining rooms, serving rooms, trunk rooms and other utilities. The building is connected to the Central Kitchen, which supplies also Chadbourne Hall and Lathrop Hall dining rooms. The interior is finished in a simple dignified manner, and is equipped with a passenger elevator.

The Home Economics and University Extension Building, located between University Hall and Agricultural Hall on Linden Drive, was begun in 1912 and completed in March, 1914. It consists of a central portion 100 feet long by 58 feet wide with one wing on the east 49 feet by 92 feet in dimensions. It contains 50,000 square feet of floor area. The cost was \$119,000 or 15.9 cents per cubic foot. The building is faced with buff vitreous brick with Bedford stone trimmings. The visible portions of the roof are covered with tile. The central portion is used by the Department of University Extension; the east wing contains the Department of Home Economics, which occupies also the third and fourth stories of the central portion. Like the other buildings recently constructed, this is of fireproof materials, with concrete floors and tile partitions. Provision is made for future extension by a wing on the west. The building presents an excellent appearance and has a commanding position, which will be further improved by the future development of drives and streets connecting with University Avenue.

The Agricultural Chemistry Building was started also in 1912 and finished in December, 1913. It consists of a central portion 108 feet by 65 feet in dimensions fronting on Univer-

sity Avenue, with a wing 134 feet by 52 feet facing on the Lesser Mall. The building is basement and two stories high and has a floor area of 30,000 square feet. The cost was \$83,363 or 12.66 cents per cubic foot. The architectural treatment and the materials of construction correspond with the Agronomy and Agricultural Engineering Buildings, immediately north. Like them, it is of fireproof construction with concrete floors and tile partitions. The roof is covered with tile. Future extension of this building is provided for by a wing on the west corresponding to that fronting on the Lesser Mall. The building is devoted to laboratories and offices and contains a chemical lecture room with a seating capacity of about 350. The attic over the wing has been finished off into practicable rooms for the work of the department. This completes the group on the west side of the Lesser Mall and forms the eastern limit of the College of Agriculture.

The Wisconsin High School was begun in July, 1913, and occupied in September, 1914. It is located on the east side of the Lesser Mall at the intersection with University Avenue, and is the first building in the Group of Applied Sciences. The building consists of a main portion facing west, 44 feet by 90 feet, containing three stories and basement. East of this is the auditorium and gymnasium portion 48 feet by 74 feet in size, and on University Avenue the south wing 44 feet by 103 feet in size, three stories, basement and attic in height. The cost was \$118,828 or 13.25 cents per cubic foot, and the total floor area is 40,000 square feet. The building is constructed of buff vitreous brick with stone trimmings, concrete floors, fireproof partitions, iron stairways, and concrete roof. The visible portion of the roof is covered with tile. The building is divided into class rooms and offices and contains in the basement, manual arts laboratories and drawing room, shower and dressing rooms and gymnasium; in the first and second stories, lecture rooms are provided for students in the Department of Education. These overlook class rooms to right and left, which enables students to witness the actual work of teaching. The gymnasium is overlooked by a gallery where the management and operation of the gymnasium classes can be studied. On the second floor is the auditorium or assembly hall with a seating capacity of 360. The third floor is occupied by labora-

tories for Home Economics, Biology, and Chemistry with the lecture room, store rooms, dark rooms, etc. The attic is used for games, lunches, and social activities incident to the school. Space is provided on the north of the building for a wing similar to that facing on University Avenue.

This completes the number of University buildings of large size occupied during the last biennium.

In addition to these are a number of small buildings for the College of Agriculture, including a laboratory for the production of hog cholera serum, constructed at a cost of \$2,083.00; two Hog Barns for Experimental Work, at \$5,085.00; a Plant Pathology Greenhouse adjacent to the Horticultural Greenhouse, at \$1,649.00; a fireproof Book Room adjacent to Agricultural Hall, at \$4,444.00. Also Agricultural Station Buildings in various parts of the state as follows:

ASHLAND

Office, at a cost of.....	\$1,540.00
Cottage, at	2,000.00
Summer Cottage, at.....	400.00
Barn, at	1,500.00
Machine Shop, at.....	350.00
Drying Shed, at.....	200.00

SPOONER

Main Building, at.....	1,800.00
(Office and Storehouse)	
Foreman's Cottage, at.....	1,728.50
Stock Barn, Silo and Machine Shed A, at.....	1,800.00
Machine Shed B, at.....	550.00
Potato Cellar, Concrete, at.....	1,621.00

MARSHFIELD

Dwelling No. 1, at.....	500.00
Dwelling, No. 2, and office, at.....	600.00
Barn No. 2, at.....	1,360.00

There were constructed also two buildings in the Service Department consisting of the Electric Sub-station in the Central Heating Station, costing \$927.00; the Central Kitchen adjacent to Chadbourne, Barnard, and Lathrop Halls, costing \$10,975.00, from which the dining rooms in these halls are supplied with cooked food.

The northwest wing of the State Historical Library was put under construction in July, 1912, and occupied in September,

1914. The dimensions of this building are 66 feet by 56 feet. It consists of a basement and six tiers of book stacks, above which is a museum. The building has a floor area of 20,000 square feet. The cost was about \$65,000, or 23c per cubic foot, exclusive of book shelves, electric lighting, stairs, elevators, etc. The building is faced with Bedford stone and constructed with steel beams and tile floors in the most approved fireproof manner. The architectural treatment corresponds with the general style of the present building.

In the design and construction of buildings undertaken during the past two years, the intention of the general design has been studiously followed especially as regards architectural treatment and the materials of construction. Buildings located on the eastern portion of the University grounds have been faced with Madison stone and made to harmonize with the rather free Italian style of the existing buildings, and at the same time have been given such variety as desirable. In buildings located further west, the same color scheme and architectural design has been conserved at somewhat lower cost by the use of buff vitreous brick with stone trimmings. In the Agricultural Department brown brick and Bedford stone have been adopted as fulfilling all aesthetic requirements in a harmonious and economical way. In the construction of these buildings due regard has been given to wise expenditure of money without sacrificing durability or fireproof character. In interior finishing and fittings the use of wood has been steadily diminished in favor of more durable and less expensive materials so that at present the buildings represent a practical minimum as to cost. This has been demonstrated in the contract prices of the several buildings where substantial value has been secured without increase of expense and that in the face of an increase in the price of labor and materials throughout the country.

Respectfully submitted,

ARTHUR PEABODY,

Architect.

APPENDIX A

The Attendance at The University of Wisconsin

1. NUMBER OF STUDENTS DURING THE PAST TEN YEARS

	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14
Letters and Science ¹	1,443	1,547	1,542	1,705	1,865	2,150	2,379	2,409	2,420	2,613
Course in Pharmacy.....	33	32	37	32	44	42	47	38	42	40
School of Music.....	153	209	191	150	114	143	274	74	76	96
Medical School.....				25	32	49	47	57	66	82
Mechanics and Engineering	804	768	799	921	896	781	807	728	678	738
Agriculture (Long).....	87	143	150	160	215	277	402	508	579	682
Agriculture (Middle).....					35	74	100	101	107	135
Short and Dairy Courses..	439	485	472	534	609	561	611	557	585	606
Forest Rangers' Course....									111	28
Home Economics.....						52	100	134	165	205
Law School.....	183	154	165	157	165	159	148	158	167	169
Library School.....	259	251	271	242	222	230	29	34	36	43
Summer Session.....	403	528	568	661	1,026	1,128	1,263	1,537	1,746	2,132
Less twice enumerated.....	203	295	265	332	480	469	468	587	697	802
Totals.....	3,342	3,571	3,659	4,013	4,521	4,947	5,539	5,748	5,970	6,765

¹ This includes the courses in commerce, chemistry, journalism, normal course, and the training of teachers. These courses are so interwoven with the other courses of the College of Letters and Science that they cannot well be separated.

² This apparent decrease in the number of music students is due to a different method of classification.

³ Not included in the totals.

⁴ This large number is due to the fact that many persons who were present at the summer session were also present in the regular sessions of the University.

2. NUMBER OF THE INSTRUCTIONAL FORCE

	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14
Professors.....	69	78	80	85	91	98	102	101	100	100
Associate Professors.....	8	9	9	13	17	22	32	40	45	51
Assistant Professors.....	38	45	48	59	70	76	93	110	111	112
Lecturers ⁵									21	20
Instructors.....	96	113	119	119	129	137	155	180	198	213
Assistants ⁷	44	47	71	84	97	121	135	150	149	155
Fellows ⁶	213	214	218	216	216	216	221	222	221	221
Totals.....	255	292	327	360	404	454	517	581	624	651

⁵ The university fellows, though primarily students, are classified here for the reason, that, according to the terms of their appointment, they are required to render a small amount of instruction. This requirement, however, applies only to the University fellows; consequently the above enumeration does not include the fellows provided for by private generosity.

⁶ Lecturers give part time service and are classified separately for the first time in 1912-13.

⁷ Assistants average half time.

Changes in the Faculty

During the fiscal year, July 1, 1912 to June 30, 1913

APPOINTMENTS

Professors

Name.	Title.
BETTS, HAROLD S., M. E., CORP, CHARLES IVES, M. S.,	Lecturer in Forest Products. Assistant Professor of Hydraulic Engineering.
GILLIN, JOHN L., Ph. D.,	Associate Professor of Sociology. Secretary, Department of General Information and Welfare, Extension Division.
HAMILTON, FREDERICK RUTHERFORD, Ph. B.,	District Representative, Extension Division.
HIBBARD, BENJAMIN HORACE, Ph. D.,	Professor of Agricultural Economics.
HOWARD, ROBERT FRANCIS, B. S., M. A.,	Assistant Professor of Horticulture.
HUMPHREY, CLARENCE JOHN, B. A. B. S. O.,	Lecturer in Plant Pathology.
JAMES, ELDON R., S. J. D.,	Professor of Law.
JUNEAU, WILLIAM JOSEPH, B. A.,	Assistant Professor of Physical Education.
KUEHNEMANN, EUGEN, Ph. D., Litt. D.,	Carl Schurz Memorial Professor.
LEWIS, IVEY FOREMAN, Ph. D.,	Assistant Professor of Botany.
LINDHOLM, SVANTE, B. L.,	Lecturer in Education.
MELVILLE, ANDREW H., Ph. B.,	District Representative, Extension Division.
MILLER, HARRY LLOYD, B. A.,	Assistant Professor of Education. Principal, Wisconsin High School.
MOODY, FRANK BENJAMIN, M. S. F., O'CONNOR, JOHN PEASLEE,	Assistant Professor of Forestry. District Representative, Extension Division.
PALMER, ROBERT CONRAD, B. S., Ch. E.,	Lecturer in Forest Products.
PEARSE, ARTHUR SPERRY, Ph. D., SINZHEIMER, LUDWIG, Ph. D., Dr. Pol. Econ.,	Assistant Professor of Zoology. Acting Professor of Political Economy.
STEVENS, THOMAS WOOD, TRILLING, BLANCHE M.,	Lecturer in Fine Arts. Director of Women's Gymnasium. Assistant Professor of Physical Education.
VARNUM, WILLIAM HARRISON,	Assistant Professor of Drawing and Design.
WRIGHTSON, PHILIP G., M. S.,	Commandant. Professor of Military Science and Tactics.

PROMOTIONS**Professors**

BLACKWELDER, ELIOT, B. A.,	From Associate Professor to Professor of Geology.
BURKE, LAURENCE CHARLES, B. L.,	From Library Assistant to Assistant Librarian.
CAMPBELL, OSCAR JAMES, Ph. D.,	From Instructor to Assistant Professor of English.
CERF, BARRY, Ph. D.,	From Assistant Professor to Associate Professor of Romance Languages.
CODDINGTON, HESTER,	From Head Cataloguer to Assistant Librarian.
DRESDEN, ARNOLD, Ph. D.,	From Instructor to Assistant Professor of Mathematics.
HOOL, GEORGE ALBERT, B. S.,	From Assistant Professor to Associate Professor of Structural Engineering.
KLEIN, DAVID, Ph. D.,	From Instructor to Assistant Professor of Chemistry.
NORRIS, EARLE B., M. E.,	From Assistant Professor to Associate Professor of Mechanical Engineering.
OTTO, MAX CHARLES, Ph. D.,	From Instructor to Assistant Professor of Philosophy.
OVERTON, JAMES BERTRAM, Ph. D.,	From Assistant Professor of Botany to Associate Professor of Plant Physiology.
PITMAN, ANNIE MARIE, Ph. D.,	From Instructor in Greek and Latin to Assistant Professor of Latin.
REGAN, ALICE,	From Instructor to Assistant Professor of Music.
ROEBUCK, JOHN RANSOM, Ph. D.,	From Instructor to Assistant Professor of Physics.
SAMMIS, JOHN LANGLEY, Ph. D.,	From Assistant Professor to Associate Professor of Dairy Husbandry.
SHUMACKER, LEOPOLD, Ph. B., M. D.,	From Instructor to Assistant Professor of Clinical Medicine.
SMITH, CHARLES AUGUSTUS, M. A.,	From Instructor to Assistant Professor of History.
SMITH, KENNETH GARDNER, B. A., B. S.,	From Assistant Professor to Associate Professor of Mechanical Engineering. District Representative, Extension Division.
STARCH, DANIEL, Ph. D.,	From Instructor to Assistant Professor of Psychology and Education.
WEISS, HOWARD FREDERICK, Ph. B.,	From Assistant Director to Director, Forest Products Laboratory.

CHANGES IN TITLE**Professors**

HART, EDWIN BRET, B. S.,	From Professor of Agricultural Chemistry to Professor of Agricultural Chemistry and Chemist to the Experiment Station.
NEYSTROM, PAUL HENRY, Ph. M.,	From Assistant Professor of Political Economy and District Representative, Extension Division to Assistant Professor of Political Economy, Extension Division.

Changes in the Faculty

During the fiscal year, July 1, 1913 to June 30, 1914

APPOINTMENTS

Professors

AMES, JESSE H., Ph. B.,	District Representative, Extension Division.
BALLANTINE, HENRY WINTHROP, B. A., LL. B.,	Professor of Law.
BARROWS, EDWARD MORLEY, B. A.,	District Representative, Extension Division.
BATEMAN, ERNEST, Ph. B.,	Lecturer in Forest Products.
COOK, ARTHUR MAYHEW, B. A., M. F.,	Associate Professor of Forestry.
DEARHOLT, HOYT E., M. D.,	Director, Bureau of Health Instruction, Extension Division.
DUDLEY, WILLIAM H.,	In charge of Bureau of Visual Instruction, Extension Division, Extension Lecturer in Ornithology.
DYKEMA, PETER WILLIAM, M. L.,	Professor of Music.
FRED, EDWIN BROUN, Ph. D.,	Assistant Professor of Agricultural Bacteriology.
HOPKINS, ANDREW W., B. L.,	Agricultural Editor. Professor of Agricultural Journalism.
HORNBECK, STANLEY KUHL, Ph. D.,	Assistant Professor of Political Science.
KEITT, GEORGE WANNAMAKER, M. S.,	Lecturer in Plant Pathology.
KINGMAN, EDWARD DYER, Ph. B.,	Assistant Professor of Railway Engineering.
LESTER, CLARENCE B., M. A.,	Department of Special Legislative Reference Library Training.
McCAFFERY, RICHARD STANISLAUS, E. M.,	Professor of Metallurgy.
MILLER, EMERSON R., Ph. C., M. S.,	Acting Assistant Professor of Plant Chemistry. Chemist to Pharmaceutical Experiment Station.
MOORE, BLAINE FREE, Ph. D.,	Lecturer in Political Science.
O'NEILL, JAMES MILTON, B. A.,	Associate Professor of Rhetoric and Oratory.
SCHMIT, CELESTINE,	Assistant Professor of Home Economics.
TEESDALE, CLYDE H., B. S.,	Lecturer in Forest Products.
TIEMANN, HARRY DONALD, M. E., M. F.,	Lecturer in Forest Products.
VANDERVORT, LYNETTE McNIEL,	Mistress of Barnard Hall.
WOODBERRY, GEORGE EDWARD, L. H. D., LL. D.,	Lecturer in English Literature.

PROMOTIONS

Professors

BEACH, BURR A., D. V. M.,	From Instructor to Assistant Professor of Veterinary Science.
BENNETT, EDWARD, E. E.,	From Associate Professor to Professor of Electrical Engineering.
BRADLEY, HAROLD CORNELIUS, Ph. D.,	From Assistant Professor to Associate Professor of Physiological Chemistry.
BRANDT, JOSEPH GRANGER, Ph. D.,	From Instructor to Assistant Professor of Latin.
BUTLER, RALPH STARR, B. A.,	From Assistant Professor of Business Administration to Associate Professor of Business Administration and Lecturer in Journalism.
CHRISTIE, ALEXANDER GRAHAM, M. E.,	From Assistant Professor of Steam Engineering to Associate Professor of Steam and Gas Engineering.
DISQUE, ROBERT CONRAD, B. L., B. S.,	From Instructor to Assistant Professor of Electrical Engineering.
FABER, DANIEL CLEVELAND, E. E.,	From Instructor to Assistant Professor of Electrical Engineering.
FEISE, RICHARD ERNST, Ph. D.,	From Instructor to Assistant Professor of German.
FULLER, JAMES GARFIELD, B. S.,	From Assistant Professor to Associate Professor of Animal Husbandry.
HASTINGS, EDWIN GEORGE, M. S.,	From Associate Professor to Professor of Agricultural Bacteriology.
HATCH, KIRK LESTER, B. S.,	From Associate Professor to Professor of Agricultural Education.
HENMON, VIVIAN ALLEN CHARLES, Ph. D.,	From Associate Professor to Professor of Education.
HETHERINGTON, CLARK WILSON, B. A.,	From Lecturer in Physical Education to Professor of Physical Education.
JONES, EDWARD RICHARD, M. S.,	From Assistant Professor to Associate Professor of Soils.
KOMMERS, JESSE BENJAMIN, B. S.,	From Instructor to Assistant Professor of Mechanics.
KOWALKE, OTTO LOUIS, Ch. E.,	From Assistant Professor to Associate Professor of Chemical Engineering.
LUTHER, ERNEST LEONARD, B. A., B. S.,	From County Representative to State Supervisor of County Agricultural Representatives.
MCCOLLUM, ELMER VERNER, Ph. D.,	From Associate Professor to Professor of Agricultural Chemistry.
MCGREGOR, FORD HERBERT, B. A.,	From Instructor in Political Science to Assistant Professor in charge of Municipal Reference Bureau, Extension Division.
MARLATT, ABBY LILLIAN, M. S.,	From Professor of Home Economics to Director of the Course in Home Economics and Professor of Home Economics.
MARTIN, LAWRENCE, M. A.,	From Assistant Professor to Associate Professor of Physiography and Geography.
MEEK, WALTER JOSEPH, Ph. D.,	From Assistant Professor to Associate Professor of Physiology.

MICHELL, ROBERT BELL, Ph. D.,	From Instructor to Assistant Professor of Romance Languages.
MOORE, SAMUEL, Ph. D.,	From Instructor to Assistant Professor of English.
MORGAN, BAYARD QUINCY, Ph. D.,	From Instructor to Assistant Professor of German.
NORGORD, CHRISTIAN PERCIVAL, B. S.,	From Assistant Professor to Associate Professor of Agronomy.
PEARSE, ARTHUR SPERRY, Ph. D.,	From Assistant Professor to Associate Professor of Zoology.
ROE, FREDERICK WILLIAM, Ph. D.,	From Assistant Professor of English and Chairman of Freshmen Advisers to Assistant Professor of English and Assistant Dean, College of Letters and Science.
SCOTT, ALMERE LOUISE, B. A.,	From Instructor to Secretary, Department of Debating and Public Discussion, Extension Division.
THORKELSON, HALSTEN JOSEPH BERFORD, M. E.,	From Associate Professor of Steam Engineering to Professor of Steam and Gas Engineering.
TORMEY, JOHN LAWLESS, B. S.,	From Instructor to Assistant Professor of Animal Husbandry.
VAN VALZAH, ROBERT, B. A., M. D.,	From Assistant Professor to Associate Professor of Clinical Medicine.
WALSTER, HARLOW LESLIE, B. S.,	From Instructor to Assistant Professor of Soils.

CHANGES IN TITLE

Professors

BABCOCK, STEPHEN MOULTON, Ph. D., LL. D.,	From Assistant Director and Chief Chemist of the Agricultural Experiment Station and Professor of Agricultural Chemistry to Professor of Agricultural Chemistry, Emeritus.
DUDGEON, MATTHEW SIMPSON, M. A., LL. B.,	From Director of the Library School, Instructor in Library Administration, and instructor in Political Science to Director of the Library School and Instructor in Library Administration.
KELLEY, FREDERICK THOMAS, B. S., Ph. D.,	From Assistant Professor of Hebrew and Hellenistic Greek to Assistant Professor of Semitic Languages and Hellenistic Greek.
LAIRD, ARTHUR GORDON, Ph. D.,	From Associate Professor of Greek and Comparative Philology to Associate Professor of Greek.
MEAD, DANIEL WEBSTER, O. E.,	From Professor of Hydraulic and Sanitary Engineering to Professor of Hydraulic Engineering.
MEANWELL, WALTER ERNEST, M. D.,	From Assistant Professor of Physical Education to Director of Men's Gymnasium and Assistant Professor of Physical Education.
MILLAR, ADAM VAUSE, M. S.,	From Assistant Professor of Drawing to Assistant Professor of Drawing and Descriptive Geometry.

PHILLIPS, JAMES DAVID, B. S.,	From Assistant Dean of the College of Engineering and Professor of Drawing to Assistant Dean of the College of Engineering and Professor of Drawing and Descriptive Geometry.
PITMAN, ANNIE MARIE, Ph. D.,	From Assistant Professor of Latin to Assistant Professor of English, Greek, and Latin.
WATTS, OLIVER PATTERSON, Ph. D.,	From Assistant Professor of Applied Electrochemistry to Assistant Professor of Chemical Engineering.
WEISS, HAROLD FREDERICK, Ph. B.,	From Director, Forest Products Laboratory and Lecturer in Forest Products to Director, Forest Products Laboratory.
WILLIAMS, WILLIAM HOLME, B. A.,	From Professor of Hebrew and Hellenistic Greek to Professor of Semitic Languages and Hellenistic Greek.
WOLFENSON, LOUIS BERNARD, Ph. D.,	From Assistant Professor of Hebrew and Hellenistic Greek to Assistant Professor of Semitic Languages and Hellenistic Greek.

VACANCIES

Taking effect June 30, 1913, unless otherwise indicated

Professors

ALLEN, BENNETT MILLS, Ph. D.....	Resigned
Assistant Professor of Zoology.	
BALL, COLLIN H.....	Resigned Dec. 21, 1912
Commandant. Professor of Military Science and Tactics.	
BURGESS, CHARLES FREDERICK, E. E.....	Resigned
Professor of Chemical Engineering.	
CARPENTER, JAIRUS HARVLIN, LL. D.....	Died Oct. 1, 1913
Mortimer M. Jackson Professor of Contracts, Emeritus.	
CLINE, MCGARVEY, M. E.....	Resigned Dec. 12, 1912
Director of Forest Products Laboratory. Lecturer in Forestry.	
DOOLITTLE, FREDERICK WILLIAM, M. S., C. E.....	Resigned
Assistant Professor of Mechanics.	
DUNLAP, FREDERICK, F. E.....	Expired
Lecturer in Forestry and Forest Products.	
EDWARDS, RICHARD HENRY, M. A.....	Expired
Editor, Studies in Social Problems, Extension Division.	
HAVARD, FRANCIS THOMPSON, E. M.....	Died May 23, 1913
Associate Professor of Mining and Metallurgy.	
HAWLEY, LEE FRED, Ph. D.....	Expired
Lecturer in Forestry.	
HOFFMAN, CONRAD, B. S.....	Expired
Assistant Professor of Agricultural Bacteriology.	
HUMPHREY, CLARENCE JOHN, B. A., B. S. C.....	Expired
Lecturer in Plant Pathology.	
JAMES, ELDON R., S. J. D.....	Resigned
Professor of Law.	
KUEHNEMANN, EUGEN, Ph. D., Litt. D.....	Expired
Carl Schurz Memorial Professor.	
LINDHOLM, SVANTE, B. L.....	Expired
Lecturer in Education.	

LYMAN, ROLLO LUVERNE, B. A.....	Expired
Associate Professor of Rhetoric and Oratory.	
McBAIN, HOWARD LEE, Ph. D.....	Resigned
Associate Professor of Political Science.	
MOODY, FRANK BENJAMIN, M. S. F.....	Resigned
Assistant Professor of Forestry.	
OCOCK, CHARLES ALBERT, B. S.....	Resigned
Assistant Professor of Agricultural Engineering.	
PETTIJOHN, JOHN J.....	Expired
Secretary of the Department of Instruction by Lectures, Extension Division.	
SHUMACKER, LEOPOLD, Ph. B., M. D.....	Resigned
Assistant Professor of Clinical Medicine.	
SINZHEIMER, LUDWIG, Ph. D., Dr. Pol. Econ.....	Expired
Acting Professor of Political Economy.	
SMITH, KENNETH GARDNER, B. A., B. S.....	Resigned
Associate Professor of Mechanical Engineering. District Representative, Extension Division.	
STEVENS, THOMAS WOOD.....	Resigned
Lecturer in Fine Arts.	
THOMAS, CARL CLAPP, M. E.....	Expired
Professor of Steam Engineering.	
WILCE, JOHN WOODWORTH, B. A.....	Expired
Assistant Professor of Physical Education.	
WOLL, FRITZ WILHELM, Ph. D.....	Resigned Nov. 1, 1913
Professor of Agricultural Chemistry. Chemist to Experiment Station.	

VACANCIES

Taking effect June 30, 1914, unless otherwise indicated

Professors

ALVORD, KATHERINE SPRAGUE, M. A.....	Resigned
Mistress of Chadbourne Hall.	
BASSETT, HARRY KENDALL, M. A.....	Resigned Oct. 15, 1914
Assistant Professor of English.	
BETTS, HAROLD SCHOFIELD, M. E.....	Expired
Lecturer in Forest Products.	
CHRISTIE, ALEXANDER GRAHAM, M. E.....	Resigned
Associate Professor of Steam and Gas Engineering.	
COOK, ARTHUR MAYHEW, B. A., M. F.....	Resigned Aug. 1, 1914
Associate Professor of Forestry. Assistant State Forester.	
FABER, DANIEL CLEVELAND, E. E.....	Resigned Sept. 1, 1914
Assistant Professor of Electrical Engineering.	
FULLER, CALEB ALLEN, Ph. D.....	Expired
Assistant Professor of Bacteriology.	
HAMILTON, FRED RUTHERFORD, Ph. B.....	Resigned Aug. 1, 1914
District Representative, Extension Division.	
HOWARD, ROBERT FRANCIS, M. A.....	Resigned Nov. 1, 1914
Assistant Professor of Horticulture.	
HUTCHINS, FRANK AVERY.....	Died Jan. 25, 1914
Secretary of the Department of Debating and Public Discussion, Extension Division.	
KLEIN, DAVID, Ph. D.....	Resigned Jan. 21, 1914
Assistant Professor of Chemistry.	
LEWIS, IVEY FOREMAN, Ph. D.....	Resigned
Assistant Professor of Botany.	
LOCKE, ARTHUR WARE, B. A.....	Resigned
Assistant Professor of Music.	
LORENZEN, ERNST GUSTAV, Ph. B., LL. B., J. U. D.....	Resigned Aug. 27, 1914
Professor of Law.	

McKERROW, GEORGE	Resigned May 31, 1914
Superintendent of Farmers' Institutes.	
MOORE, BLAINE FREE, Ph. D.	Expired
Lecturer in Political Science.	
MOORE, WILLIAM UNDERHILL, M. A., LL. B.	Resigned
Professor of Law.	
NEYSTROM, PAUL HENRY, Ph. M.	Resigned
Assistant Professor of Political Economy.	
PROKOSCH, EDUARD, Ph. D.	Expired
Assistant Professor of German.	
RAVENEL, MAZYCK PORCHER, M. D.	Resigned
Director of the State Laboratory of Hygiene. Professor of Bacteriology.	
REINHARD, EUGENE, Ph. D., LL. D.	Died Jan. 8, 1914
Assistant Professor of German.	
THWAITES, REUBEN GOLD, LL. D.	Died Oct. 22, 1913
Lecturer in History.	
TRESSLER, ALBERT WILLIS, B. A.	Resigned Sept. 1, 1914
Inspector of Schools.	
VANDERVORT, LYNETTE McNIEL	Resigned
Mistress of Barnard Hall.	
WOODBERRY, GEORGE EDWARD, L. H. D., LL. D.	Expired
Lecturer in English Literature.	

FINANCIAL STATEMENTS

RECEIPTS AND EXPENDITURES

**FOR DETAILS OF RECEIPTS AND EXPENDITURES SEE:
UNIVERSITY BULLETIN NO. 705.**

SUMMARY OF RECEIPTS

Fiscal Year, 1912-13

Accumulated surplus, June 30, 1913:			
Transferred.....			(\$19,172.52)
Untransferred.....			(255,611.00)
			(\$274,783.52)
Receipts from Students:			
Tuition fees.....	Sched'le B-2	\$79,037.50	
Incidental fees.....	" B-3	170,827.24	
Special fees for gymnasium, etc.....	" B-4	5,497.60	
Special fees for laboratories.....	" B-5	45,809.75	
Gross receipts from dormitories.....	" B-6	12,502.40	
Gross receipts from dining halls.....	" B-7	67,037.36	
			\$380,711.85
Receipts from Investments:			
Interest on "University Fund".....	" P-1	\$11,790.85	
Interest on Current Balances.....	" P-2	7,304.51	
Interest on "Agricultural College Fund".....	" Q-1	12,779.18	
Interest on University Trust Funds.....	" Q-2	(7,317.13)	
			\$31,874.54
Receipts from Grants:			
Federal Government.....	" T-1	\$80,000.00	
			\$80,000.00
State of Wisconsin:			
I } From tax levy 1 mill, gen'l purposes	" T-2	\$810,090.90	
(Amount actually transferred.)			
II } Appropriation, general purposes.....	" T-3		
III } Appropriation, designated purposes.....	" T-4	289,686.99	
Appropriation, new construction.....	" T-5	379,801.57	
			\$1,479,468.56
Receipts from Gifts:			
General purposes.....	" V-1		
Designated purposes.....	" V-2	\$10,745.17	
			\$10,745.17
Receipts from Various Sources:			
Sales.....	" W-1	\$131,153.57	
Technical inspections.....	" W-2	26,225.50	
Unclaimed checks.....	" W-3	792.45	
Insurance recovered.....	" W-4	22.40	
Refunds from advances.....	" W-5	3,634.15	
Library fines.....	" W-6	195.10	
Lectures, concerts and conventions.....	" W-7	1,529.30	
Athletic council.....	" W-8		
Unclassified.....	" W-9	2,123.80	
Total Receipts Exclusive of Trust Funds, Deposited and Temporary Loans.....			\$2,148,476.39

SUMMARY OF RECEIPTS
Fiscal Year, 1913-14

Accumulated Surplus, June 30, 1914.....			(307,220.91)
Receipts from Students:			
Tuition fees.....	Sched'le B-2	\$91,217.50	
Incidental fees.....	" B-3	186.89 .07	
Special fees for gymnasium, etc.....	" B-4	6,238.06	
Special fees for laboratories.....	" B-5	122,069.33	
Gross receipts from dormitory.....	" B-6	28,347.44	
Gross receipts from dining halls.....	" B-7	103,550.05	\$538,412.44
Receipts from Investments:			
Interest on "University Fund".....	" P-1	\$11,963.62	
Interest on Current Balances.....	" P-2	3,771.93	
Interest on "Agricultural College Fund".....	" Q-1	12,728.14	
Interest on University Trust Funds.....	" Q-2	(8,118.23)	\$28,463.69
Receipts from Grants:			
Federal Government.....	" T-1	\$80,000.00	\$80,000.00
State of Wisconsin:			
I { Tax levy 1 mill. general purposes....	" T-2	(\$1,124,320.00)	
{ Appropriation general purposes....	" T-3	1,379,938.40	
{ (Amount actually transferred).....			
II Appr., designated purposes.....	" T-4	420,367.33	
III Appropriation new construction....	" T-5	343,550.73	\$2,153,856.46
Receipts from Gifts:			
General purposes.....	" V-1		
Designated purposes.....	" V-2	\$12,721.14	\$12,721.14
Receipts from Various Sources:			
Sales.....	" W-1	\$156,124.75	
Technical inspections.....	" W-2	34,896.85	
Unclaimed checks.....	" W-3	2,035.83	
Insurance recovered.....	" W-4	155.75	
Refunds from advances.....	" W-5	4,166.55	
Library fines.....	" W-6	86.08	
Lectures, concerts and conventions.....	" W-7	34,654.78	
Athletic Council.....	" W-8	45,139.97	
Unclassified.....	" W-9	2,510.65	\$279,800.81
Total Receipts Exclusive of Trust Funds, Deposits, and Temporary Loans.....			\$3,093,254.54

LETTER OF STATE TREASURER

October 12, 1912.

PRESIDENT OF THE REGENTS OF THE UNIVERSITY OF WISCONSIN.

Dear Sir:—I have the honor to submit my report as treasurer of the Board of Regents of The University of Wisconsin for the fiscal years ending June 30th, 1913 and June 30th, 1914.

HENRY JOHNSON,
State Treasurer.

UNIVERSITY FUND INCOME

Statement of Receipts and Disbursements from July 1, 1912 to June 30, 1913

RECEIPTS		
July 1, 1912—Balance on hand.....	\$249,559.82	
Interest on land contracts.....	49.46	
Interest on loans.....	3,421.39	
Interest on bonds.....	550.00	
Interest on State Deposits.....	5,659.10	
Interest on Certificates of Indebtedness.....	7,770.00	
United States Government.....	80,000.00	
Loan from General Fund.....	150,000.00	
Building Appropriation.....	287,034.50	
Woman's Dormitory.....	92,767.07	
Books and Apparatus.....	50,000.00	
University Extension.....	125,000.00	
University Bursar.....	558,744.34	
Insurance recovered.....	22.40	
Travelling School of Agriculture.....	40,000.00	
Agricultural Institutes.....	20,000.00	
State Tax.....	810,000.00	
Land Purchases.....	48,168.99	
Agricultural Experiment Station.....	2,000.00	
Agricultural Demonstration Station.....	1,080.00	
Agricultural College Income.....	12,779.18	
Douglas County Experiment Station.....	500.00	
Washburn Observatory.....	3,000.00	
Cancelled Drafts.....	11.96	
DISBURSEMENTS		
Warrants paid, 1912-13.....		\$2,378,863.69
General Fund loan repaid.....		150,000.00
Balance June 30, 1913.....		19,172.52
	\$2,548,036.21	\$2,548,036.21

UNIVERSITY FUND INCOME

Statement of Receipts and Disbursements, July 1, 1913, to June 30, 1914

RECEIPTS		
July 1, 1913. Balance on hand.....	19,172.52	
Interest on Land Contracts.....	49.46	
Interest on Loans.....	3,724.16	
Interest on Bonds.....	420.00	
Interest on State Deposits.....	3,184.77	
Interest on Certificates of Indebtedness.....	7,770.00	
United States Government.....	80,000.00	
Tax Remission.....	255,611.00	
Taxes.....	1,124,327.40	
University Bursar.....	831,299.30	
Insurance—Fire Losses.....	147.25	
Loan, First National Bank, Milwaukee.....	300,000.00	
Refund—Jessie Wilcox.....	75.00	
Ag. College Income Transfer.....	12,728.14	
GENERAL FUND APPROPRIATIONS		
Buildings.....	\$252,317.14	
Books and apparatus.....	40,643.44	
Woman's Building.....	43,880.55	
Sub-Section 1.....	163,016.14	
3.....	40,000.00	
7.....	1,319.00	
8.....	7,620.00	
9.....	66,898.30	
10.....	48,325.00	
Sec. 7, Chap. 631, Laws 1911.....	47,000.00	
Sub-Section 11.....	48.48	
14.....	47,304.56	
16.....	2,882.79	
20.....	2,500.00	
21.....	2,500.00	
22.....	3,283.20	
Contagious Abortion.....	2,177.85	
Sub-Section 25.....	1,201.61	
30.....	1,000.00	
Total.....	\$3,412,427.06	
DISBURSEMENTS		
University warrants.....		\$2,805,206.15
Loan, First National Bank, Milwaukee.....		300,000.00
Balance, June 30, 1914.....		307,220.91
		\$3,412,427.06
RECAPITULATION		
Balance on hand July 1, 1912.....	\$249,559.82	
Receipts for two years.....	5,691,730.93	
Disbursements for two years.....		\$5,634,089.84
Balance June 30, 1914.....		307,220.91
	\$5,941,290.75	\$5,941,290.75

SUMMARY OF EXPENDITURES, FISCAL YEAR 1912-1913

University Divisions	A Expenditures for Instruc- tional and Administra- tive Services	B Expenditures for Wages	C Expenditures for Maintain- ing Offices	D Expenditures for Consum- able Material and Supplies	E Expenditures for Maintain- ing Buildings and Grounds	F Expenditures for Perma- nent Im- provements	Total Expen- ditures by Divisions
1 Administration.....	\$54,449.15	\$896.74	\$36,265.32	\$467.01	\$4,218.59	\$1,993.06	\$88,290.87
2 General Library.....	17,747.43	.....	563.86	2,945.56	12,652.46	23,678.98	53,145.33
3 Physical Education.....	30,589.94	7,069.25	838.96	2,945.91	12,656.49	3,768.49	54,179.16
4 Military Science.....	18,832.12	12,671.63	4,329.18	32,370.78	42,324.52	21,254.11	107,782.34
5 *College of Letters and Science.....	449,832.13	70,675.90	19,330.40	114,768.79	28,972.33	27,692.19	599,432.92
6 College of Agriculture.....	184,318.64	7,722.41	2,220.44	6,682.69	21,500.24	18,055.07	234,504.52
7 College of Engineering.....	186,664.84	7,722.41	2,220.44	6,682.69	21,500.24	18,055.07	234,504.52
8 Law School.....	30,589.94	3,615.35	527.31	5,183.15	2,726.60	2,583.79	39,987.16
9 *Medical School.....	30,589.94	3,615.35	527.31	5,183.15	2,726.60	2,583.79	39,987.16
10 School of Music.....	22,404.80	379.00	250.00	1,177.34	1,447.59	6,431.05	23,181.95
11 Training of Teachers.....	22,404.80	379.00	250.00	1,177.34	1,447.59	6,431.05	23,181.95
12 Graduate School.....	22,404.80	379.00	250.00	1,177.34	1,447.59	6,431.05	23,181.95
13 Summer Session.....	30,183.64	110.37	1,487.25	18.79	2,673.15	90.20	33,539.68
14 University Extension.....	119,359.41	784.16	23,327.52	1,614.16	2,905.98	5,205.90	153,187.13
15 Agricultural Institutes.....	8,727.50	72.50	11,564.02	5.54	1,750.71	48.39	20,517.39
16 Hygienic Laboratory.....	6,542.01	660.00	11,568.70	909.75	380.66	1,327.97	10,324.08
17 High School Inspection.....	4,247.30	.....	2,533.51	97.25	.....	8.40	6,886.46
18 Washburn Observatory.....	5,680.00	720.00	55.24	6.39	1,553.26	671.04	8,695.93
19 Forest Products Laboratory.....	.....	131.01	.....	.....	6,032.19	.....	6,163.22
20 Physical Plant.....	4,041.27	26,302.60	3,259.10	52,244.77	38,530.10	455,014.28	581,392.12
21 Store.....	4,045.89	.....	.....	8,143.54	.....	.....	12,194.43
Fees Refunded.....	\$1,144,902.53	\$135,506.56	\$98,842.76	\$225,714.71	\$181,680.35	\$563,338.27	\$2,369,994.18
Total Expenditures.....	.....	.....	.....	.....	.....	.....	8,869.51
							\$2,378,863.69

* Library School Included in Letters and Science.

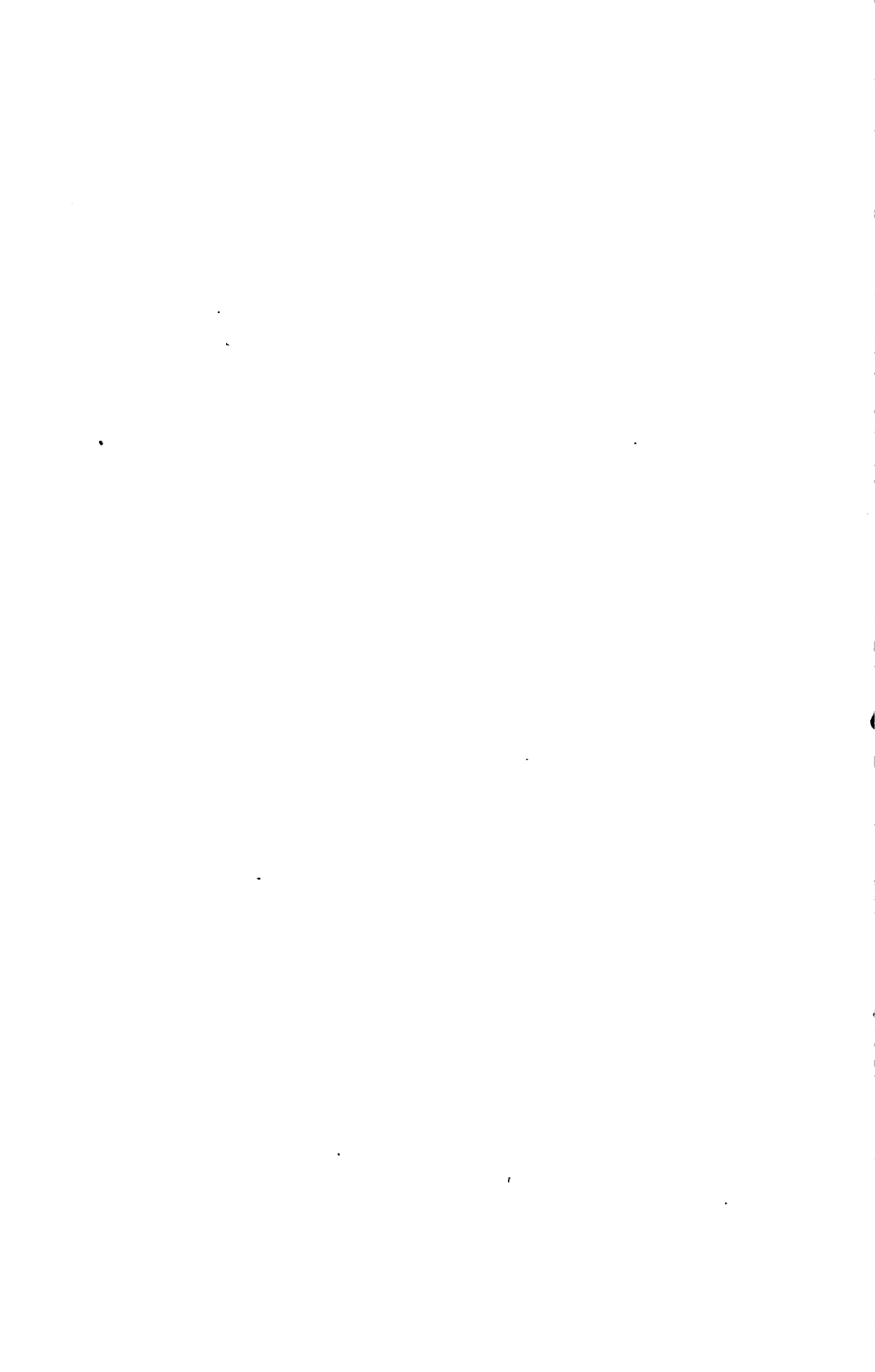
** Student Health Included in Medical School.

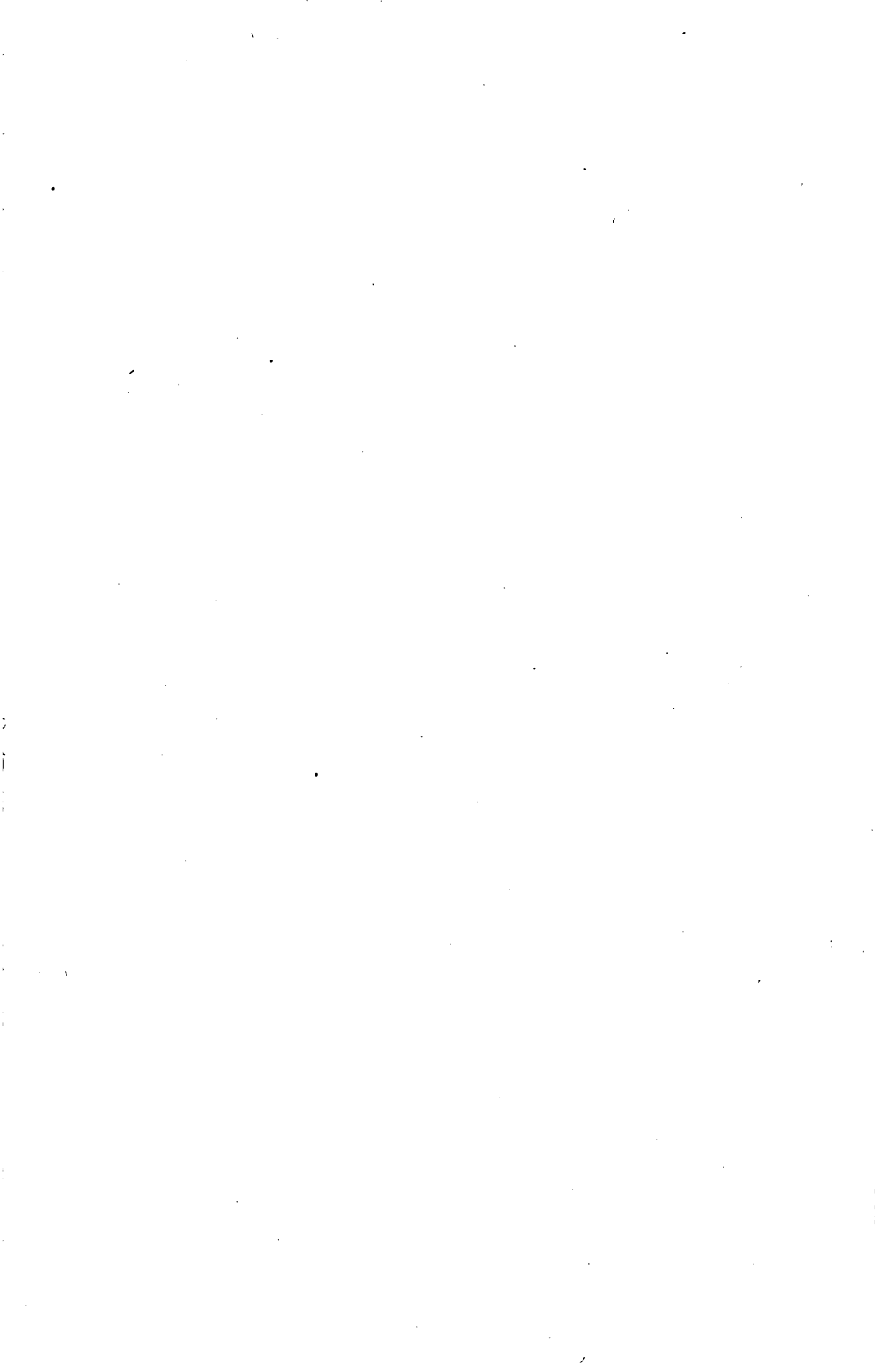
REPORT OF THE BOARD OF REGENTS

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SUMMARY OF EXPENDITURES FISCAL YEAR 1913-1914

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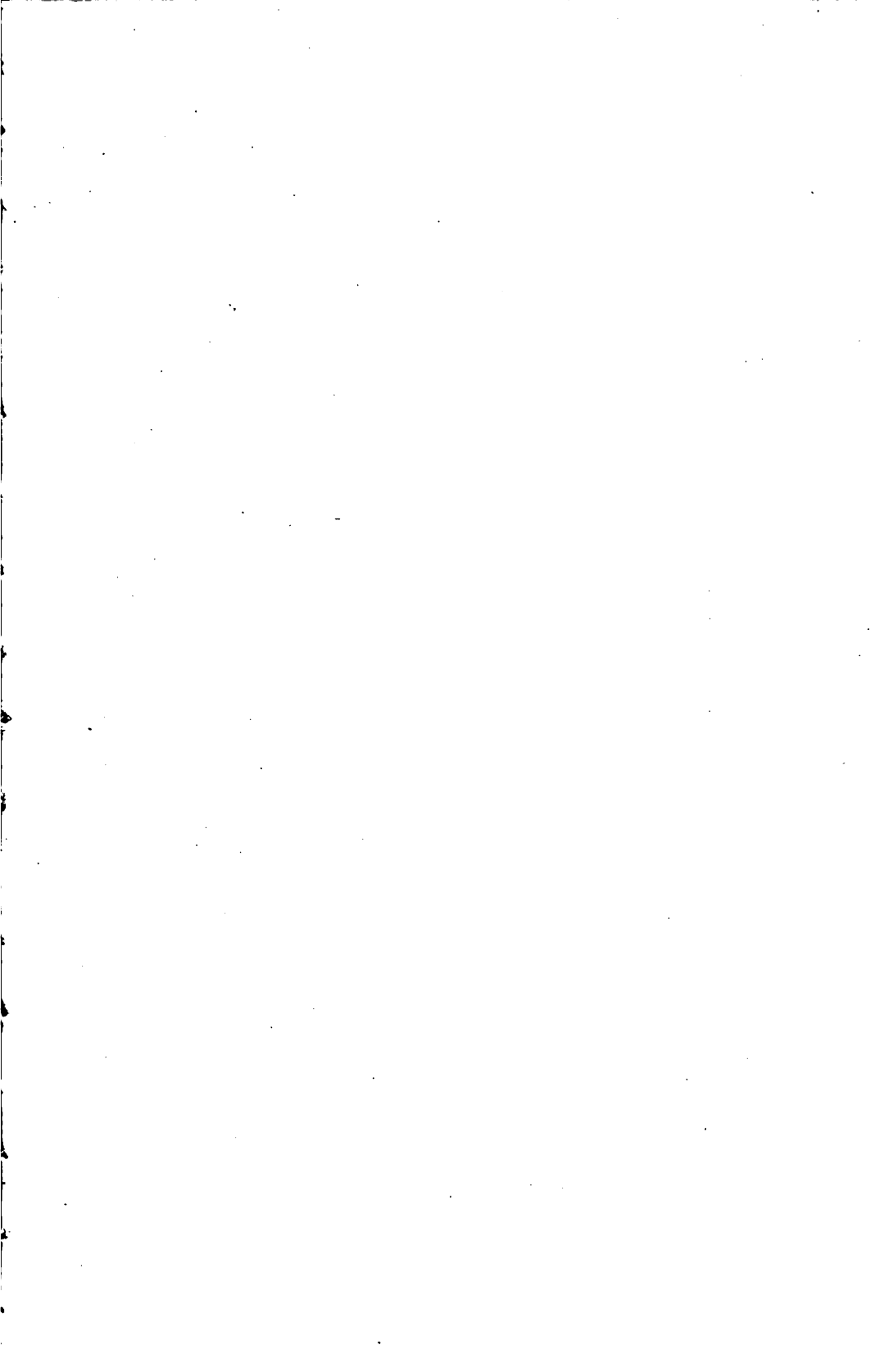






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